A REVIEW ANALYSIS OF THE PHYSICAL INVENTORY PROCESS AT NAVY STOCK POINTS

WALTER F. WRIGHT

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Walter F. Wright, Jr.
//
Lieutenant Commander, Supply Corps,

United States Navy

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ABSTRACT

At the Naval Supply Conference held at Athens, Georgia, on 6 - 8 April 1964, Admiral John Crumpacker, SC, USN, Chief, Bureau of Supplies and Accounts, identified the physical inventory process as one of the major problems facing the Navy supply system. The conference report discussed several alternatives, but came to no definite conclusion pending results of a Bureau study. Captain R. Reeves, SC, USN, a member of the conference stated ".....I might add that while we have a tendency to think only of the computer as performing the more mundane functions of record keeping work, it has much to offer in areas such as inventories."

The purpose of this paper is to review and analyze the current physical inventory process at Navy stock points. The research was accomplished by a study of the written materials, observation of the process at the U. S. Navy Supply Center, Oakland, California, and the author's experience as Inventory Officer at the U. S. Navy Supply Center, Pearl Harbor, Hawaii.

In addition to the review and analysis, the study relates the effectiveness of the inventory effort with the costs of conducting them. The paper also proposes alternatives to the present program using modern statistical theory to determine what should be inventoried, and automatic data processing equipment to improve the physical inventory process at reduced cost. This latter alternative includes a model program for use on the IBM 1401 computer system, the equipment currently available at a number of Navy stock points and supply departments of Naval shipyards and air stations.

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Chapter I

THE PROBLEM AND DEFINITION OF TERMS USED

The Need. During Fiscal Year 1964, increased evidence pointed out the fact that the balance of a relatively large portion of the Navy's inventory of material was not in agreement with system records. Or to put it less delicately, inventory managers responsible for the inventory just didn't know how much of a large segment of their material they really had in the system stored at the Navy stock points located throughout the world.

The evidence for this conclusion was based upon reports from stock points and inventory managers that the percentage of requisitions which stock points could not fill because of a "not-in-stock" position due to "warehouse refusals"[1] was increasing and at unacceptable levels. For example, one activity reported that 25% of its total NISs were due to warehouse refusals. For some of its stock, the percentage was as high as 60%[2].

As a result of this situation, the Chief of the Bureau of Supplies and Accounts directed that a complete physical inventory of Navy supply system stocks be accomplished in Fiscal Year 1965[3]. A complete annual

[1]A "warehouse refusal" occurs when stock records show an adequate balance to satisfy a demand but the warehouse does not. This is one of the primary indicators of the need for inventory.

[2]United States Navy Department, Office of Chief, Bureau of Supplies and Accounts. Proceedings of the Navy Supply Conference, Athens, Georgia 6-8 April 1964. (U. S. Government, 1964) p. H9.

[3]U. S. Government, Department of the Navy, Chief of Bureau of Supplies and Accounts Instruction 4440.106, FY 1965 Plan for Physical Inventory at Designated Shore Activities. (Washington D.C.: Navy Department, 1964).

inventory had not been policy since 1956 and accordingly an increased workload was placed on each stock point to accomplish this task without additional funds to accomplish it.

The Problem. The tempo of naval operations today is such that the supply system which supports it and assists to keep it operating must be able to respond rapidly. Inventory managers need precise information of how much material is on hand and where it is located if it is to achieve optimal response. Furthermore, the type of weapon systems employed today has increased the numbers and costs of repair parts and other materials to support them. Unfortunately the resources with which the manager must fund for supply support of the new weapons systems has not increased proportionately. Therefore, the inventory manager must allocate his resources efficiently. To do this, he must first know his system-wide physical inventory.

Although one of the purposes of physical inventory is to insure accurate system records, it is clear that physical inventory has suffered from a lack of management attention. In this connection:

> Usually physical inventory has been considered an expendable function, to be accomplished as time, personnel ceilings and other workload permitted, rather than as a vital task of inventory management. One result of this attitude has been the total elimination of the inventory, or the assignment of resources insufficient to do a satisfactory job. The inventories are an end product of this short-sighted approach. Even when inventories have been conducted in accordance with current regulations, there is evidence that accurate information on stock assets in the stock balance and locator files is not always achieved as an end product. The lack of management interest is reflected not only in the occasional

failure to conduct complete inventories or the failure to detect inventory accuracy, but also in the limited scope normally assigned to inventory in the overall management improvement program.[4]

The Purpose of Inventory. Probably the most common conception of the purpose of a physical inventory is to verify stock records with the actual on hand quantity in stock. However, physical inventory has other purposes as well which are equally important. The purposes of the physical inventory are as follows:[5]

1. To verify balances of stock on hand and stock record balances of inventories.

2. To determine the differences between actual physical count and stock record count balances.

3. To ascertain the causes of these differences.

4. To provide data for planning against the recurrence of these differences.

5. To prepare a correct money trial balance of each stock class which will be used to adjust the current financial inventory.

Statement of the Problem. It is the purpose of this study to examine the physical inventory process at Navy stock points. The examination will include recommendations for improvement of the process where appropriate.

Importance of the Study. The implementation of a complete inventory of system stocks during Fiscal Year 1965 without increased funding to

[4]Bernard Radack, "Physical Inventory at Navy Supply Activities", Systems Research Division, Bureau of Supplies and Accounts, Aug. 1959, p. 9 (Mimeographed).

[5]United States Navy Department, Office of Chief, Bureau of Supplies and Accounts. Bureau of Supplies and Accounts Manual, Volume II. (U. S. Government, 1965) para. 24560.

accomplish this additional responsibility requires that the inventory be done as efficiently and accurately as possible. With the advent of automatic data processing equipment at stock points during the last few years, the traditional methods of conducting and reconciling the inventory has become dated. Accordingly, this study presents alternatives to the current physical inventory program and provides the stock point with a physical inventory plan which can be accomplished under present funding constraints.

The Physical Inventory Process. The physical inventory process includes all of those actions required of stock point personnel to accomplish the following:

1. Planning necessary to determine what stocks need to be inventoried and the order in which it will be accomplished.
2. Conducting the actual count and location audit (where appropriate).
3. Reconciling count with stock records.
4. Adjusting stock records to agree with the count.
5. Ascertaining the reasons for differences between counts and stock record balances.
6. Reporting the results of inventory to management with appropriate recommendations concerning stock management in light of investigations made as a result of differences.
7. Preparation of a money value trial balance of stock inventory for fiscal accounting purposes.

Assumptions. The study assumes that the methods and procedures with regard to stock record management at all stock points are the same. While in general they are, in particular cases they may not be because of size or whether or not a uniform automatic data processing system is in operation. This assumption might result in some minor modifications to the alternatives presented in this study.

Since the study aims primarily at presenting less costly alternatives to the present physical inventory program and not a detailed methods engineering evaluation of the physical inventory process, the examples used to illustrate the alternatives are assumed to have been verified by methods engineering or operations research techniques.

Review of the Literature. One of the surprising results of the study was the discovery of how very little has been written on physical inventory in the civilian academic community. Only one book was found which was devoted entirely to the subject. On the other hand, a great deal of literature has been written in recent years on the subject of inventory management, control, funding, etc. These sources usually omitted or gave only casual mention of the problems associated with physical inventory.

Accordingly, the author gained nearly all the information for this paper from government sources as the bibliography will indicate. The principal sources for this study were supply system directives, publications and manuals, and studies of the Department of the Navy and the Defense Supply Agency.

Organization of the Report. In order to explore the physical inventory process and present alternatives to it, the study outlines briefly the inventory management organization which currently exists, details the history and evolution of physical inventory at Navy stock points,and describes the physical inventory processes which exist at a typical stock point. This information is provided in Chapters II, III and IV respectively.

The alternatives to the present physical inventory program are

outlined in Chapters V and VI. Chapter V contains a critical analysis of the current physical inventory program and presents a model for determining what should be inventoried. Chapter VI contains a proposal for utilization of automatic data processing equipment to accomplish the physical inventory function. It is important to note that the two proposals presented in Chapters V and VI are separate and independent proposals and the adoption or non-adoption of one would not preclude the adoption or non-adoption of the other.

Finally, Chapter VII presents the summary and conclusions of the study.

Chapter II

THE INVENTORY MANAGEMENT ORGANIZATION

Introduction. The logistics and supply responsibilities of the Navy supply system are indeed formidable and challenging. The system manages many thousands of line items ranging in size from tiny electronic parts to huge anchors. This material may have a value ranging from gaskets costing less than one cent to electron tubes whose value exceeds $15,000. The inventory of material is in constant change due to the introduction of new weapons systems and the phase-out of the older systems.

The Chief of Naval Material. The Naval Material Support Establishment begins with the Chief of Naval Material. From a material support viewpoint the entire Naval organization can be organized into two functions, producer and consumer. The Chief of Naval Operations and supporting operational organizations represent the consumer of material which is made available where wanted in the quantities desired by the producer side lead by the Chief of Naval Material. The consumer organization places demands for material upon the Material Support Establishment which reacts to insure that material is made available. The Chief of Naval Material's chief assistants which provide this support are the four material bureaus and their supporting shore installations. These bureaus are Yards and Docks, Supplies and Accounts, Weapons, and Ships. Each bureau is given specific missions and responsibilities to insure that the material needs of the Naval organization are met.

The Bureau of Supplies and Accounts. The Bureau of Supplies and Accounts has been given the task of administering the Navy Supply System

which includes establishment of policy with regard to the functions of cataloging, standardization, inventory control, storage, issue, and disposal of Navy material. The primary mission of the Navy Supply System is to economically and effectively supply Navy activities with all of their material needs (including general supplies, equipment, parts, food, clothing, ammunition, and petroleum products) required to carry out assigned missions. To accomplish this task, the Bureau of Supplies and Accounts and its related activities translate planning information received from the Chief of Naval Material into detailed information concerning how much to provide, at what cost, as well as when to procure material and where it should be located.

The Supply Demand Control Point (SDCP). Since World War II, the Navy Supply System has operated under the "inventory manager" concept of supply responsiveness for material requirements. Under this concept the entire inventory of Navy material was broken into general categories of material (general stores, ships parts, electronics, ordnance, aviation, etc.). Each broad category was given to a SDCP to manage. This management includes the determination of requirements (based upon the planning information provided by the consumer organization), procurement, distribution, and disposal of the material assigned (see figure 2-1). Procurement is generally from the civilian defense industry and distribution is normally to one of the stock points of the system. The role of the SDCP in meeting the material requirements of the operating forces was reduced considerably with the establishment of the Defense Supply Agency (see below) in 1961. Since DSA has taken over management of material which is common to the three services, the SDCP currently is responsible only for material which is required exclusively by the Navy. There are

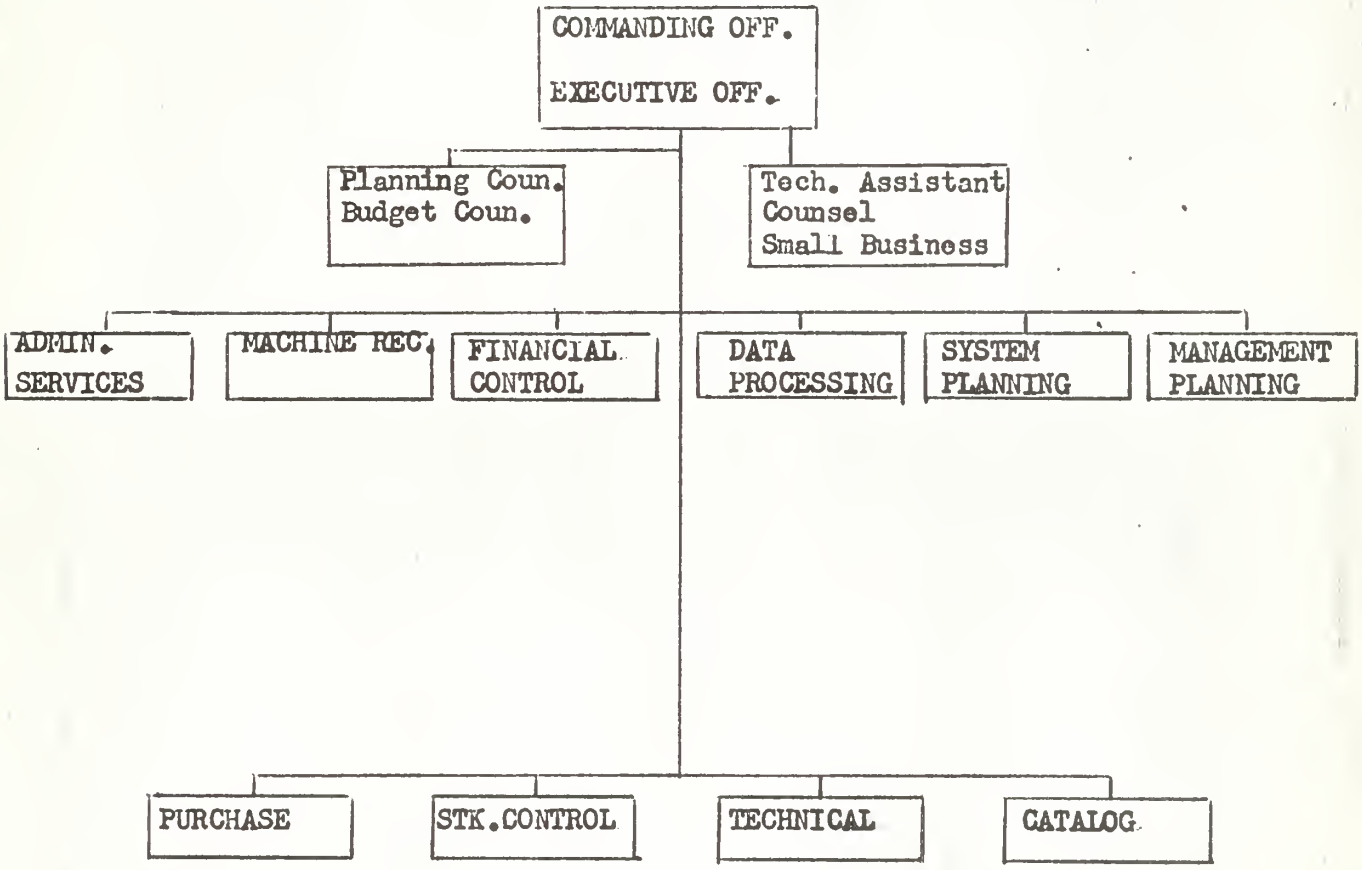


Figure 2-1

STANDARD ORGANIZATION OF
NAVY SUPPLY DEMAND CONTROL POINT

some important exceptions to this statement (for example, aviation repair part support has not been integrated into DSA).

The SDCP concept of supply responsiveness is one of "push" rather than "pull". That is, based upon planning information provided by the consumer organization coupled with internally generated demand data, the SDCP seeks to have material located where it will be required and in the proper quantities to meet the needs of the operating forces. Among other things this requires frequent status information from the stock points in order to accumulate demand information.

The Supply Stock Points. These activities are also under the management control of the Bureau of Supplies and Accounts. Generally, they are located in tidewater areas close to concentrations of naval ships and industrial complexes. They have the task of receiving material (as a result of SDCP action), storage of material, and issue when demanded by another naval organization (see figure 2-2). Stock points are also integrated into the DSA network as well. Stock points vary in size, but the largest (Norfolk and Oakland Naval Supply Centers) carry over 700,000 different items of material and process over 20,000 issues, receipts, and other transactions each day.

The Defense Supply Agency. This organization which was mentioned briefly above came into existence in 1961. It has the inventory management responsibility for common items and services. The organization of DSA closely resembles that of the Navy Supply System. It consists chiefly of Inventory Control Points for broad categories of material (clothing, construction supplies, electronics, general supplies, industrial supplies, medical, fuel, and subsistence) and a number of depots where material is stored until required.

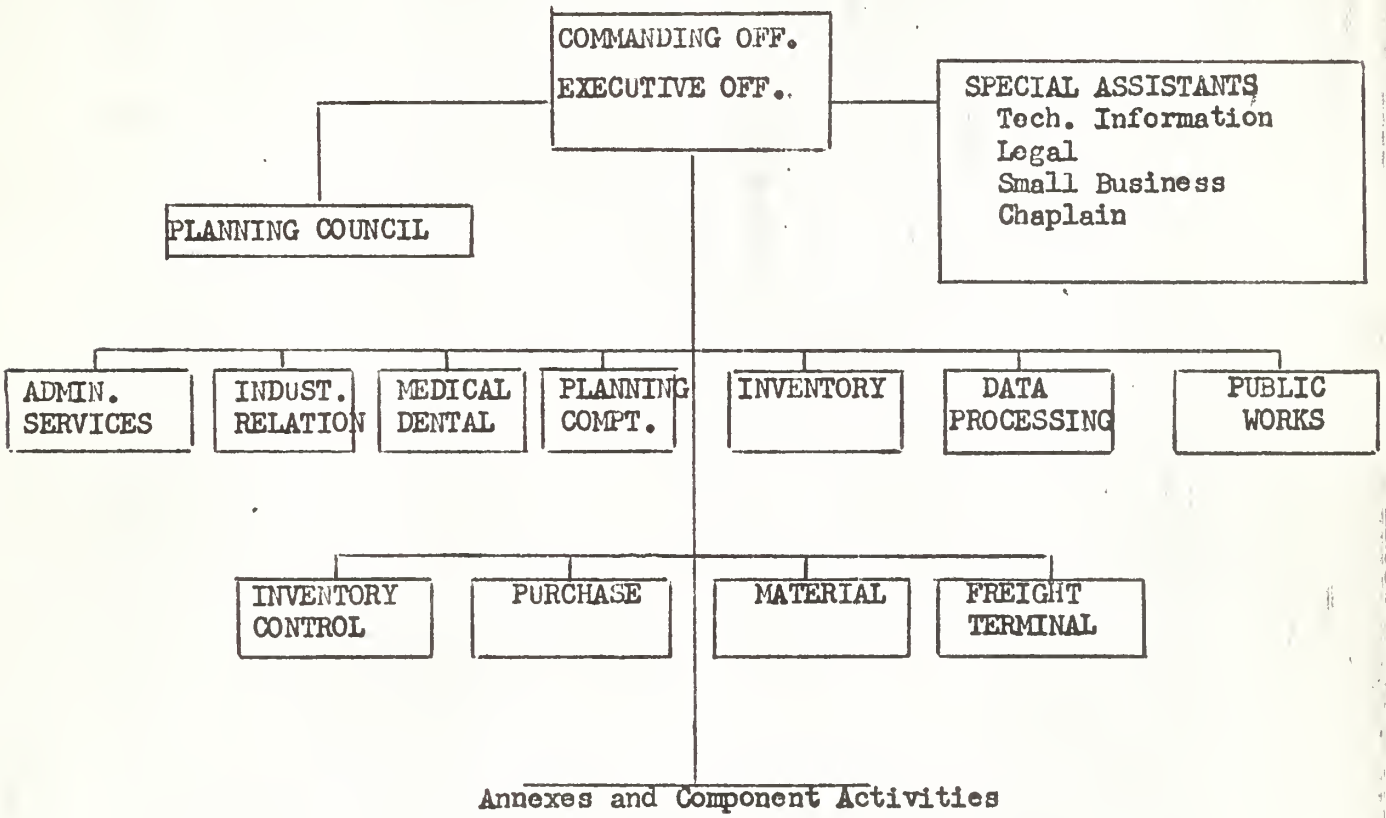


Figure 2-2

STANDARD ORGANIZATION OF NAVY STOCK POINT

There are two important differences between the Defense Supply System and that of the Navy. First DSA operates on a "wholesale" basis. It is concerned with procurement and distribution of material to major stock points and consuming activities of the services. Consequently, the individual Navy activity does not place his demand with a DSA depot for material. Rather the individual activity still goes to a Navy supply activity which in turn goes to DSA for its stock. Large Navy organizations such as shipyards and overhaul activities could conceivably go direct to DSA if their requirements for some categories of materials (such as industrial supplies), made them a "wholesale" customer. Broadly speaking then, a Navy stock point receives material from both the DSA system and the Navy Supply System.

The second major difference is that DSA operates a "pull" distribution system as contrasted to the "push" system of the SDCP. The pull system requires the stock point (or large industrial activity) to inform the DSA inventory manager of the quantity of material required. Demand prediction is done at the stock point level under the DSA concept whereas it is done at the SDCP level in the Navy Supply System.

Implications for Physical Inventory. Under both the DSA and Navy Supply Systems stock records are maintained at the stock point or depot. Furthermore, the replenishment cycle is determined, in part at least, by either the stock status reporting of stock balance to the SDCP for Navy managed material or pulling material from a DSA depot from demand information generated at the stock point based upon stock records.

Both systems depend fundamentally upon the accuracy of stock records. Stock records which are not in agreement with the physical inventory

represent either material lost to the entire supply system (when material is present and not recorded) or time and resources wasted trying to fill a demand which cannot be filled by the local stock point (when records show a balance but there is none in stock).

Chapter III

THE EVOLUTION OF PHYSICAL INVENTORY AT NAVAL STOCK POINTS[1]

Introduction. The analysis of physical inventory as currently practiced by Naval Supply System would not be complete without a short discussion of the evolution of this process and the developments which brought about the change from one system to another. It is a curious fact that the inventory process has made a complete circle in the past ten years as the reader will see indicated below.

Inventory Processes 1956-1965. Prior to 1956, basic policy with regard to physical inventory of all of the Navy's material was contained in Navy Regulations. It specified that a complete reconciliation of all stock records with material physically located in store should be made annually. This requirement was not difficult to accomplish during this period since the range of material carried by a stock point was not too great. However, with the introduction of increasingly sophisticated weapons systems in the fifties, the stock point found the range of items carried increasing and the funds to conduct physical inventory decreasing. Furthermore, some of the material carried by stock points showed little transaction history since the previous annual physical inventory. Accordingly, this concept was changed in 1956 to a triennial inventory, that is, every item was inventoried at least once during a three year interval. Some material (ships store, fuel, clothing, etc.) remained on an annual or semi-annual cycle.

[1]The author is indebted to the Naval Supply Center, Oakland, California, whose report entitled "Physical Inventory" was the source for much of the material in this chapter. This report was presented to the DSA/Navy SSD Conference on 27-28 January 1965.

During the period between 1955 - 1960, stock points became mechanized in stock record keeping, EAM equipment coupled with the introduction of computers led to increased capability to manage the stock of material at an activity. To economize on resources and also take advantage of computer capability, a number of stock points abandoned the triennial inventory in favor of an active item inventory. The rationale for this move was to avoid inventorying material which had a very low transaction history. An active item was defined as any record where the quantitative demand history during the previous twelve months was equal to or greater than the current on hand balance.

The sixties introduced the era of the shrinking supply support dollar coupled with tremendous demands upon the supply system. New weapons system development increased the supply system workload considerably. The introduction of DSA and new methods of doing supply business required that the supply system economize wherever possible to save money. Operating funds for BUSANDA managed activities were seldom increased and often decreased. As a result, physical inventory suffered. In 1962, in part, to bring physical inventory effort back into proper control, the Bureau of Supplies and Accounts introduced the statistical sampling method of conducting physical inventory.

Under the statistical sampling method, the stock point was required to inventory a random segment of all his material annually. If the sample indicated fewer than ten percent of the sample contained errors, that segment of material did not have to be inventoried that year. Otherwise, it would have to be inventoried. This program met with difficulty from the beginning. Since the sampling program required additional inventory effort at a time when funds for inventory program were being reduced and

furthermore, since nearly all of the material carried by a stock point showed a greater than ten percent error rate, the stocking activity found itself in a position of having to sample the entire range of material and then, having sampled, required to inventory nearly all of their material in the succeeding eight or nine months. This proved to be a tremendous inventory requirement increase. Since additional funds to conduct this program were not provided, stock points were not able to keep up with the program.

In 1963 and 1964 some activities dropped the regular inventory program altogether in order to live within budget constraints. As an interim measure, these activities relied on the "spot inventory" program (discussed in Chapter IV) and inventory of an item which was demanded and whose stock record indicated a zero balance. This program was labeled the "inventory prior to referral of a not-in-stock (NIS)".

During this period (1961-64) wholesale transfers of material between inventory managers occurred. It was not unusual to see a particular item transferred among three or more Navy and DSA inventory managers, and at each transfer a corresponding stock number change. Increased demands upon the system without corresponding funding also made keeping up with workload difficult. The management barometers indicated to the Chief of the Bureau of Supplies and Accounts that significant quantities of materials were on hand but not recorded and vice versa. Accordingly, in BUSANDA Instruction 4440.106 dated 12 May 1964[2], the circle was completed with the requirement that stock points make a complete physical inventory

[2]U. S. Government, Department of the Navy, Chief of Bureau of Supplies and Accounts Instruction 4440.106, FY 1965 Plan for Physical Inventory at Designated Shore Activities. (Washington, D.C.: Navy Department, 1964).

of their material in stock during Fiscal Year 1965. This instruction remains the basic recorded policy of the Bureau of Supplies and Accounts to this date, although the author discovered during a visit to the Naval Supply Center at Oakland, California that at least that activity was unable to comply with the directive since the Bureau was unable to fund the additional costs associated with a complete physical inventory.

The DSA requirement for physical inventory closely resembles that of the Navy Supply System. DSA regulations[3] provide for special inventory requests from DSA inventory managers and in some cases sample or total DSA item inventory.

[3]U. S. Government, Department of Defense, Defense Supply Agency, Supply Operations Manual Volume I, Distribution System Procedures (DSAM 4140.2), (Cameron Station, Virginia: Defense Supply Agency, 1963).

Chapter IV

THE PHYSICAL INVENTORY PROCEDURES AT A TYPICAL STOCK POINT IN THE NAVY SUPPLY SYSTEM[1]

Introduction. In order that the reader may have a general understanding of the nature of the physical inventory process, this chapter is devoted to describing the process at one of the stock points within the supply system. The process includes a great deal more than the mere counting of material. Indeed, as will be seen below, nearly every operating department at a stock point is involved in the inventory process.

Inventory procedures are not completely standard, but follow closely the guidelines of Volume II of the BUSANDA Manual. The procedures will vary depending upon such things as the type of ADP and EAM equipment installed, the arrangement of stock in the warehouse, and occasionally the type of material involved. Therefore, the procedure described below is by no means standard.

Preparation for Inventory. Two weeks prior to the count date, the Inventory Department notifies both the Material and Inventory Control Department that a particular class will be inventoried. This period is necessary in order that the storage personnel can arrange the material to facilitate counting and insure that all receipts and issues are made before the cutoff date. The Inventory Control Department likewise uses this period to insure that all transactions for the particular class are completed prior to cutoff date.

[1]The procedures described in this chapter were gathered from Part E of Bureau of Supplies and Accounts Manual, Volume II, Stock Management at Field Supply Points, (Department of the Navy, Bureau of Supplies and Accounts, 1964), para. 24560-24602 and the author's own experience as Inventory Officer at the Naval Supply Center, Pearl Harbor, Hawaii.

A few days prior to count, Inventory Department personnel inspect the material to be counted. This inspection is conducted to insure the stock is arranged to facilitate count, that all receipts and issues are being processed, and to plan for any particular problems in connection with the inventory before the count begins.

Inventory Cutoff. At the close of business the day before the scheduled count, the locator cards for material to be inventoried held by the storage branch of Material Department and the stock record cards for material to be inventoried held by stock control branch of Inventory Control Department are forwarded to the data processing section. If location information is maintained on the stock balance cards it may not be necessary to send locator cards. From these cards, the data processing section prepare inventory count cards and financial detail cards. Usually one inventory count card is prepared for each location available (at NSC Pearl, for example, some material was located in three different locations, retail, back-up, and bulk). The count cards are given a serial number (to facilitate resorting) and sorted into location sequence. The cards are then made available to the Inventory Department for their use the following day.

First Count. On the scheduled date, inventory count personnel proceed to the storage warehouse with inventory count cards and proceed to count all the material. They proceed from item to item on the basis of the specific location determined by the location information on the count card. Count is usually manually recorded in pencil as so many boxes, bales, cartons, etc., times the number in each box, bale, carton, etc. Count is recorded in this fashion so that count personnel are not required to perform any multiplication.

Since count personnel proceed on the basis of location, care must be exercised to insure that material is not missed which may not have had a stock record or locator card. To account for this, inventory count personnel attach a colored tag to the bin, bay, etc., after they have completed their count. After all material has been counted, the supervisor of the count personnel and the supervisor of the warehouse inspect the area to check bins that do not have tags. When material is found which was not inventoried, a hand written inventory count card is prepared.

During the course of inventory all routine issues and receipts are held up by the stock control branch until notified by Inventory Department of release of control over a particular class of material. This is to minimize the chance of errors occurring because of issues made and not accounted for during inventory. However, high priority issues are made during inventory. The transactions are recorded on the count cards and an indication is made whether the issue was made before or after the material was counted.

Reconciliation of Count. As the count proceeds, batches of completed count cards are forwarded to the pre-audit division of Inventory Department. The total count is calculated and compared with the stock balance recorded at cutoff. If the differences exceed the standards prescribed by the Commanding Officer, the cards are returned for a second count. Otherwise, audit personnel adjust stock balance to agree with inventory. These are termed "minor adjustments". At NSC Pearl Harbor, for example, a gain or loss that (1) exceeded $100, or (2) exceeded 10% of the recorded stock balance at cutoff, or (3) represented a complete gain or loss (for example, stock balance 10, inventory 0, a complete loss) required a second count.

Second Count. The second count proceeds in much the same fashion as the first except that inventory count personnel are very careful to insure that nothing has been overlooked which might have contributed to the discrepancy. Storage areas are searched and all documents are accounted for. At the conclusion of the second count, all control over the material is released by the Inventory Department and business proceeds as usual.

Final Adjustments. Final adjustments are made by pre-audit personnel on the basis of the second count. Stock records are adjusted to agree with the count. Both major and minor adjustments are accomplished by use of the financial detail cards which are either key-punched or mark-sensed and resubmitted to the data processing section. That section either prepares an offset card if stock records are maintained on cards or prepares adjustments for those activities whose records are maintained on the computer. The financial detail cards are also used to prepare adjustments to fiscal ledgers to bring the money value into agreement with actual inventory.

The time between cutoff and final adjustments is normally only a few days, depending of course, upon the size of the lot under inventory. It is desirable to conclude the inventory as quickly as possible in order to minimize possible errors due to poor control over transactions occurring during inventory.

Investigations. Major gains and losses which are defined as those exceeding $1000 are investigated. This investigation goes on even after the records have been adjusted and control over material released. Investigations may take several weeks to complete and are made by final-audit personnel who are experienced personnel, well indoctrinated in

supply procedures. The investigation may take many forms, but as a minimum, each transaction since the previous inventory is audited. Any errors brought to light as a result of the investigation are adjusted independently of the regular inventory adjustments.

Inventory Reports. The concluding act in the inventory process is the report of inventory which is submitted to the Commanding Officer with copies to each interested department. The inventory report is a key management barometer since the inventory statistical information and the narrative report of investigations which are part of the report point out to management areas which require attention or conversely, areas and personnel who are doing outstanding work.

The Area Inventory. The narrative above has described the location inventory method. Another popular method of conducting the inventory is the area (often called a wall-to-wall inventory). It differs only in that material is counted in turn beginning with one end of an area through to the other end. It has the advantage that it insures that no material is missed. The disadvantage lies in the fact that material is rarely stored in a manner that makes area inventory convenient.

The Spot Inventory Program. This program is conducted independently of the regular cyclical inventory by the Inventory Department. Furthermore, a spot inventory usually involves only one item whereas the regular inventory considers a whole group or class of material. Whenever a stock record clerk or warehouseman suspects records are out of balance, they request a spot inventory and an independent count, reconciliation, and adjustment is made. Spot inventories are made without benefit of the control over transactions available during regular inventory and as a result, a careful audit is made before an adjustment is made.

Special Procedures. The above process, as was mentioned above is not completely standard throughout the system. Some activities prefer the area method over the locator method, some prefer to hold completely all issues during inventory to minimize errors, and some activities use the personnel in the warehouse to conduct the count. The procedures differ only in detail. Additionally, some material (for example bulk fuel, classified material, highly pilferable items, etc.) require special additional procedures which were not covered in the above narrative.

Chapter V

Alternatives to the Current Navy Inventory Program

Introduction. As Chapter III outlined in detail, the inventory program of the Navy supply system has gone through a complete cycle from the annual total wall-to-wall inventory prior to 1956 to the requirement for a complete inventory of all material in store during FY 1965. The interim period has seen the triennial inventory (1956), the active item inventory (1961), the sampling inventory (1963, and the spot inventory (1964).

The current inventory program requirement set forth by the Bureau of Supplies and Accounts[1] has met with considerable difficulty in achieving the objective of a complete inventory of all material in store during the current fiscal year. At the Naval Supply Center at Oakland, California, for example, this requirement generated a request for additional funds of $174,506 and a complete shut down of that activity for a period of two weeks.[2] Since the funds could not be provided to accomplish a complete inventory, the Chief, Bureau of Supplies and Accounts, reduced the inventory program requirements to that of inventory of active items and warehouse refusals.[3]

[1]U. S. Government, Department of the Navy, Chief of Bureau of Supplies and Accounts Instruction 4440.106, FY 1965 Plan for Physical Inventory at Designated Shore Activities. (Washington. D.C.: Navy Department, 1964).

[2]Commanding Officer, Naval Supply Center, Oakland, California, letter to Chief Bureau of Supplies and Accounts dated 15 June 1964.

[3]Chief of Bureau of Supplies and Accounts letter to Commanding Officer, Naval Supply Center, Oakland, California, dated 21 August 1964.

Although the requirement for a complete inventory was brought on by the steadily increasing evidence that large disparities existed between material on hand and material shown on stock records, there has been no indication that the Bureau of Supplies and Accounts intends to pursue a different inventory policy in the near future.

The Costs of Inventory.[4] The cost of conducting a complete inventory is expensive indeed. For example at the Naval Supply Center, Oakland, California, it is estimated that it costs approximately $.30 to count each line item. This does not include the audit function. With approximately 781,000 line items stocked, the costs of a complete count would approximate $234,300. To calculate the entire inventory function costs, it has been estimated by NSC Oakland, that the current inventory program costs $702.47 per day (approximately $175,600 per year) and this cost reflects only the current effort outlined above and not a complete inventory.

The Objective of an Inventory Program. Before proceeding with a criticism of the present program and presenting any alternatives to it, a measure of effectiveness should be laid out by which it may be judged. Basically, the objective for which an inventory program is optimal for the Navy supply system is an economic one. It is really one of allocation of resources among alternative programs. The Commanding Officer of a stock point is faced with the problem of allocation of the funds he receives to operate his activity among various programs which in a sense are competing with each other for the resource dollar. Naturally, the

[4]Figures presented in this section are based on information provided by NSC Oakland personnel to the author during fact-finding visit in February 1965. The information provided for the costs of inventory per day were estimates based on incomplete Methods Engineering Studies.

Commanding Officer attempts to channel these resources into the areas which promise maximum return in the form of increased responsiveness of his activity to demands placed upon it. Or to put it into the marginal analysis of economics, the last dollar invested in inventory should yield the same improved effectiveness as that same dollar invested in any other program available to achieve increased effectiveness. Therefore, the objective of the inventory program should be to yield the maximum effectiveness per dollar of investment.

Criticism of the Present Program. It would seem that the current program does not meet the test outlined above for at least two reasons.

First of all, it is expensive. A complete inventory of material includes counting and reconciling year after year all of the material which is positioned at a Navy stock point in the same location with no demand for it. This includes all of the war mobilization and insurance type stocks of material. Since increased funds to accomplish the complete inventory do not appear to be forthcoming, the stock point is faced with counting only part of their stocks completely and perhaps not counting some material which should have been counted, or adopting a system such as the one described above at the Naval Supply Center, Oakland, California. Thus, the Bureau of Supplies and Accounts has laid down a requirement which most activities are unable to meet within present funding resources.

The second major criticism of the current inventory program is that the procedures outlined to accomplish the inventory function are based upon count and reconciliation procedures that have been in existence since 1958. Since that time, nearly every major stock point has received

automatic data processing equipment and yet the inventory functions have not fully utilized the advantages of data processing equipment to speed up the inventory function at considerable savings in cost.

Alternatives to the Present Program. As was indicated above, the Naval Supply Center, Oakland, California, has received authority to deviate from the complete inventory program prescribed by the Bureau of Supplies and Accounts. Their alternative program is to inventory only items in which a transaction occurred within the preceding twelve month period, conduct a material location audit, and inventory under the "spot inventory" program whenever a warehouse denial occurs (when stock records indicate a balance but warehouse does not).

While this program is probably more economical than a complete inventory, in that only the material which probably needs to be inventoried is counted, it has one major flaw. The warehouse denial inventory program cures the problem after the damage has been done. A requisition which goes unfilled because of a warehouse denial is an expensive transaction both for the supply system and the customer. It is expensive for the system in that needless effort is wasted in processing the demand at the activity, and in case of a priority demand, the requisition will be passed (in many cases by premium communication methods) to another activity to process. It is expensive for the customer in terms of the time lost to process the requisition through the activity and then if passed to another activity, more time is required to meet the demand. In the case of high priority requisitions, the real cost of these delays may be many times greater than the cost of the item itself. Therefore, the program at NSC Oakland, while an improvement, in some cases is more a corrective measure than a preventive one, and the objective of the

inventory program should seek to prevent errors (and thus improve effectiveness) as well as correct them.

The inventory program of the Defense Supply Agency presents another alternative to the present complete inventory program. Their program is based upon the sampling technique and is patterned after the program the Navy supply system attempted to use in 1962. Figure 5-1 shows the physical inventory sampling standards prescribed by DSA. The chief objection to this program is that if all of a stocking activity's DSA material has larger than a ten percent error rate, the entire lot must be inventoried. If the Commanding Officer is faced with a choice of what to inventory he is no better off after having sampled a considerable portion of his material. The sampling method used by DSA does not tell the decision maker the relative importance of the material, which material needs to be inventoried first, or if all material cannot be inventoried, which material, if inventoried, will yield the greatest benefits in terms of increased effectiveness.

If the Commanding Officer cannot inventory all of his material, then how can he decide where the best allocation of the inventory effort should be? Two alternatives to the present inventory program based upon the criticisms presented above will be outlined in this and the succeeding chapter. The alternative to the complete inventory of all material will be presented below while a proposal for use of automatic data processing equipment to accomplish the pre-audit function is presented in Chapter VI of this paper.

SINGLE SAMPLING PLAN-NORMAL INSPECTION
INVENTORY TEST SAMPLE-90% ACCURACY

Lot Size	Sample Size	Number Discrepancies Acceptable	Reject
0-280	32	0	1
281-500	50	1	2
501-1200	80	3	4
1201-3200	125	5	6
3201-10000	200	10	11
10001-35000	315	21	22
35001-150000	500	30	31

To compute sample accuracy (%), multiply the number of major errors by 100, divide by the sample quantity, and subtract from 100.

Figure 5-1

PHYSICAL INVENTORY SAMPLING STANDARDS[5]

[5]From: U. S. Government, Department of Defense, Defense Supply Agency, Supply Operations Manual Volume I, Distribution System Procedures (DSAM 4140.2), (Cameron Station, Virginia: Defense Supply Agency, 1963) p. C-21-1.

There are three variables that should be considered in deciding which groups of material should be inventoried. First, we should know the maximum probable degree to which a particular group of material is out of balance with stock records. The tools of statistical sampling theory provide the measures to quantify this variable. Second, the decision maker should account for the relative essentiality of his material to the potential customer. In other words, it is more important, for example, that a stock point have an accurate inventory of magnetron tubes for a radar set than mimeograph paper. A ship can operate effectively without the latter, but not the former. Although essentiality is a new subject still under study for application to the Navy supply system, the theory is sound, and it has application to the inventory problem. The third variable that should be considered is the degree to which the accuracy of a particular stock of material is improving relative to other stocks and past historical data. Once again, the tools of statistics enables the decision maker to quantify this variable. Finally, if agreement can be reached on the relative importance of each variable, a final model can be outlined which will enable the decision maker to decide, given a restricted budget with which to inventory, which of all his stocks should be inventoried and the order in which it should be accomplished so that resources are used where they are most likely to increase his supply effectiveness. Quantification of each of the variables relating to the proposed model is discussed in turn below.

The Application of Statistical Sampling Theory. For purposes of illustration, assume that a hypothetical stock point has the material in the quantities shown in figure 5-2.[6] From each of these groups of material a random sample of the size indicated[7] is taken and the number of inventory errors as shown in figure 5-2 occurred. The proportion of errors in the sample is then obtained by dividing the number of errors by sample size (see figure 5-2). Using this sample statistic, the central limit theorem, and the tools of statistics[8] we can calculate the 95% confidence error for each sample proportion. The formula is as follows:

$$E^2 = (1.96)^2((x/n)\cdot(1-x/n)/n)\cdot(N-n)/(N-1)$$ where

E = 95% confidence error

x = number of errors in the sample

n = sample size

N = population size (no. of items in the group)

[6]The hypothetical cognizance symbols, group and class bear no resemblance to any actuality or real activity's stocks. They are for illustrative purposes only.

[7]Sample size selected from standards cited in DSA Manual Vol. I (DSA 4140.2) op. cit., p. C-21-1, "Physical Inventory Sampling Standards".

[8]For a detailed discussion of the theory see statistics texts outlined in the bibliography.

MATERIAL	N NUMBER OF ITEMS	n SAMPLE SIZE	x NO.ERRORS IN SAMPLE	x/n ERROR PROPORTION	.95 CONFIDENCE ERROR	.95 MAX.LIKELY ERROR
IH 2920	3744	200	35	.17	.06	.23
IH 3110	4752	315	15	.05	.02	.07
IH 4110	354	50	7	.14	.09	.23
IH 4220	84	32	1	.03	.05	.08
IH 4305	375	50	11	.22	.11	.33
9G 5105	633	80	9	.11	.07	.18
9G 5110	474	50	9	.18	.10	.28
KZ 5305	10041	500	40	.08	.02	.10
KZ 5315	8579	500	18	.04	.02	.06
KZ 5330	3682	200	47	.23	.06	.29
IN 5905	11384	500	67	.13	.03	.16
IN 5915	2470	125	15	.12	.06	.18
IN 5930	6440	315	17	.05	.02	.07
IN 5945	1201	125	13	.10	.05	.15
9G 7520	849	80	25	.31	.10	.41
9G 7530	630	50	6	.12	.09	.21
9G 7930	1561	125	18	.14	.06	.20
KZ 8010	884	80	20	.25	.09	.34
KZ 8030	204	32	4	.13	.11	.23
9U 8420	93	32	2	.06	.07	.13

FIGURE 5-2

APPLICATION OF ERROR PROPORTION
TO HYPOTHETICAL INVENTORY SAMPLES

This error is described in statistical terms as follows: If we were to take a large random sample (say greater than 5% of N) of size n over and over again, 95% of the time we would get results that would lie within the error E. We are able to make this assumption by using x/n as an estimate of P, the true proportion of errors in N, the total population, and the central limit theorem which states that if P is not close to 0 or 1 and if the population is large, the theoretical sampling distribution of x/n can be approximated closely with a normal curve.

By adding this error to our original sample proportion error figure 5-2 shows the maximum likely error (i.e., with a probability of .95) inherent in the population.

If we wish greater confidence in the estimate of error, 2.33 or 2.58 could be substituted for 1.96 to achieve respectively a 98% or 99% degree of confidence, but this increases the size of the error considerably. Furthermore, increasing the sample size will decrease the size of the error, but this must be weighed in relation to the costs of sampling versus the degree of precision required. Notice finally that a 100% confidence in the estimate of error is not theoretically possible without inventory of the entire group.

We end up with, then, a maximum likely proportion of errors in the population for each group of material at the stock point. We have thus quantified the first variable and the decision maker now has a feel for the degree of inventory error inherent in his material relative to each other. If we stopped here, we would probably conclude that 9G7520 should be inventoried first and KZ 5315 last according to figure 5-2.

Notice that the above technique is not at all like the use to which statistical sampling techniques were put by the Navy in 1962 or DSA under its present inventory program. They used sampling to indicate whether the inventory error exceeded a set standard (ten percent for DSA material), and if the sampling indicated either all or a goodly portion of all the stocks exceeded the standard, no relative indication was produced which would allow proper allocation of the limited resources to fund the inventory.

The Application of Essentiality. The idea of essentiality is simple to talk about, but difficult to quantify. Just as it is important to know the degree of inventory error likely in a group of material, it is also important that the material which is essential to the customers that a stock point serves be maintained in good shape (this is supply effectiveness). Therefore, the Commanding Officer, in deciding what material should be inventoried, would most likely choose to inventory electronics material over office supplies if both had the same degree of inventory errors, the stock point were supporting Navy ships vice shore establishments, and funding restrictions dictated inventory of one, but not both.

This is the idea of essentiality. Since this paper deals with the inventory problem and not that of quantifying essentiality, we will illustrate its use in only a general and arbitrary fashion. The actual quantification of essentiality for use with the inventory program would probably require the talents of the operations analysis or methods engineering personnel at the stock point.

For illustration then, assume we can justify flatly stating that on a 0-10 scale (0 being the least essential and 10 the most essential) the relative essentialities assigned to the same hypothetical groups previously discussed hold as shown in figure 5-3. Then, by making another bold assumption, assume that inventory error is ten times as important as essentiality. By assigning a relative weight of one for each percent of maximum error shown in figure 5-2 we achieve the desired relationship between inventory error and essentiality. By adding the error and essentiality numbers for each group in figure 5-3 and dropping the decimal we could arrive at a relative standing which has accounted for inventory error and essentiality and could be used as the basis for the decision as to which groups should be inventoried and in what order. On the basis of inventory error and essentiality the Commanding Officer would most likely inventory IH 4305 first and IH 3110 last. Since we have another variable to account for the addition was not made in figure 5-3.

The Application of a Measure of Improvement. The final consideration of the proposed model which indicates inventory desirability ranking is a measure of how much the error rate inherent in the population has improved (or the reverse) compared to the average errors of previous inventories conducted. Since this information is one of management's benchmarks of effectiveness, the error rate on previous inventories is readily available.

Assume for example, that we have established by means of sampling an error rate of .20 in the sample for two different groups with identical essentialities. However, based on historical data, we discover one had a previous average error rate of .10 and the other .30. Clearly

MATERIAL	NUMBER OF ITEMS	MAX. LIKELY ERROR	ESSENTIALITY
IH 2920	3744	23	08
IH 3110	4752	07	02
IH 4110	354	23	08
IH 4220	84	08	09
IH 4305	375	33	10
9G 5105	633	18	02
9G 5110	474	28	03
KZ 5305	10041	10	02
KZ 5315	8579	06	04
KZ 5330	3682	29	02
IN 5905	11384	16	06
IN 5915	2470	18	10
IN 5930	6440	07	08
IN 5945	1201	15	09
9G 7520	849	41	01
9G 7530	630	21	01
9G 7930	1561	20	02
KZ 8010	884	34	01
KZ 8030	204	23	01
9U 8420	93	13	04

FIGURE 5-3

APPLICATION OF ESSENTIALITY
TO HYPOTHETICAL INVENTORY SAMPLES

then the stock upkeep of the former is deteriorating while the latter is improving and we would most likely want to inventory the group with the previous .10 rate in preference to the other which indicates an improvement in stock upkeep. Our measure of improvement allows us to account for this.

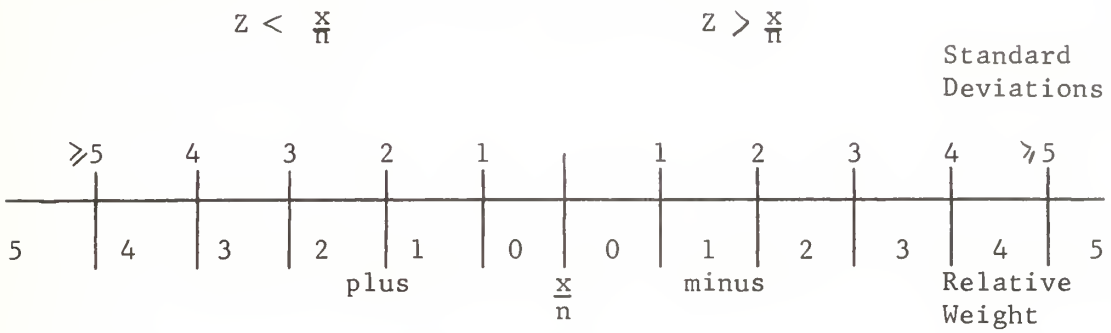
To quantify this measurement, we rely upon statistics. Deviation is a popular and important statistic and measures the relative deviation about a point irrespective of the magnitude of the point. The deviation is measured in standard units and for the use in the proposed model we have selected the standard deviation of the sample statistic previously measured (i.e. x/n) whose formula is given as follows:

$$(\text{Standard Deviation})^2 = \frac{(x/n)\ (1-x/n)}{n}$$

To establish our measure of improvement, the standard deviation is expressed in whole units (1,2,3,etc.) away from the sample proportion. For example, if the sample proportion (x/n) is .20 and the standard deviation is .04 then .16 and .24 are one standard deviation away from the sample proportion, .12 and .28 two, etc. To calculate the measure in relation to the previous average inventory proportion of errors (termed Z below), we express Z as being so many (1,2,3,etc.) standard deviations away from the sample proportion.

Once again for illustration we assume a relationship that may not stand up under the investigation of an operations analysis team, but assume that essentiality is twice as important as our measure of improvement, and we are relatively more concerned the farther away (in terms of standard deviations) the Z value lies from the x/n value. Then the

following scale could be adopted to establish the weight to assign this variable:



Thus, for example, given the following values Z, x/n, and standard deviation, the relative weights assigned would be as follows:

Z	x/n	Std.Dev.	Weight
.20	.25	.02	+2
.25	.20	.02	-2
.10	.11	.02	0
.30	.10	.02	-5

The rationale for the weights assigned is that the closer the x/n value to the Z value the less improvement indicated, and since we would expect the frequencies of sample x/n's to cluster around the Z value the less weight assigned. On the other hand the greater the deviation the greater the indication of an improvement (or the reverse) and accordingly a higher weight is assigned. Plus and minus has been used to indicate that we desire to inventory the group whose sample information shows negative improvement over previous inventories and we wish to account for groups of material whose sample information shows a positive improvement (i.e., we may not want to inventory).

Accordingly, in figure 5-4 we have repeated from figure 5-3 the sample error and essentiality calculations with weights assigned as

MATERIAL	PREV.AVE. INV.ERROR	STND DEVIATION	IMPROVE MARK	MAX.LIKELY ERROR	ESSENTIALITY	TOTAL MARK
IH 2920	.09	.03	2	23	08	33
IH 3110	.12	.01	-5	07	02	04
IH 4110	.17	.05	0	23	08	31
IH 4220	.02	.03	0	08	09	17
IH 4305	.15	.06	1	33	10	44
9G 5105	.10	.04	0	18	02	20
9G 5110	.34	.05	-3	28	03	28
KZ 5305	.10	.01	-2	10	02	10
KZ 5315	.06	.01	-2	06	04	08
KZ 5330	.33	.03	3	29	02	32
IN 5905	.07	.02	2	16	06	24
IN 5915	.05	.03	2	18	10	30
IN 5930	.09	.01	-4	07	08	11
IN 5945	.04	.03	2	15	09	26
9G 7520	.45	.05	-2	41	01	40
9G 7530	.15	.05	0	21	01	22
9G 7930	.19	.03	-1	20	02	21
KZ 8010	.43	.05	-3	34	01	32
KZ 8030	.10	.06	0	23	01	24
9U 8420	.14	.04	-2	13	04	15

FIGURE 5-4

APPLICATION OF IMPROVEMENT MEASURE
TO HYPOTHETICAL INVENTORY SAMPLES

noted previously. To this we indicate the standard deviation and our improvement mark which we calculated from information provided above.

The Combined Model. By adding the three variables indicated in figure 5-4 we arrive at a total "need for inventory" mark. We have accounted for each of the three essential variables by arbitrarily weighting error ten times as important as essentiality and the latter twice as important as improvement. By selecting the group with the highest mark we have indicated the order in which material should be inventoried.

The model can be used in a number of ways. For example, sampling could be conducted for all groups at the beginning of the year and the yearly inventory planned accordingly. If resources preclude complete inventory, groups can be inventoried to the extent of available funds. And most important if this is the situation (scarce resources), the use of this model will enable the optimal use of the inventory dollar since material is being inventoried that should be inventoried (in relation to the entire group).

As an alternative, the model may be used as a standard. For example, perhaps resource dollars may be put to better use than allocation to inventory whose final mark is less than some established mark. It could be that the human errors of the system (receipts, issues, re-warehousing, etc.) are such that it is not economical to inventory below some level and it might be better to inventory some material more than once per year until the sample information indicates an acceptable error rate.

One variable which was not included in the proposed model was the value of the inventory. It could very well have been, but for the stock

point, dollar value has little significance in relation to increased effectiveness which is the main concern of the inventory program. Admittedly, it has powerful significance for echelons at higher levels and for the civilian business firm it is probably weighted very high. But for most customers that the stocking activity serves, if an item is required, the dollar value is of importance only in-so-far as it effects the funding of other requirements.

Finally, the proposed model has been designed so that all of the calculations required to determine which stocks will be inventoried can be accomplished on automatic data processing equipment at the stock point once the essentiality standards have been set.

This chapter has hopefully demonstrated that there are alternative methods other than the complete inventory program or spot inventory of zero balance program which provide a better indication of where inventory resources can best be allocated. The quantification which led to combining the variables could undoubtedly be improved with further study. The fundamental arguments of the model are, however, superior to those presented for the programs in existence today.

Chapter VI

A Proposal for Use of Electronic Data Processing Equipment to Accomplish the Inventory Reconciliation and Pre-audit Function

Introduction. Chapter I discussed the current need for an effective and economical physical inventory program at naval stock points. The lack of such a system in the past few years has resulted in decreased supply system responsiveness.[1]

Chapter IV outlined the physical inventory procedures at naval stock points as set forth in Volume II of the Bureau of Supplies and Accounts Manual.[2] Although these procedures are not completely standard at all navy stock points, due to size, range of material stocked, and because of differing missions, the fact remains that all inventory procedures break down into count, pre-audit, final audit, and investigation functions. The differences exist in the manner in which these functions are accomplished.

The Bureau of Supplies and Accounts, as has been indicated, currently has the physical inventory program under study. Whichever of the alternative systems is finally adopted by the bureau, each of them will still require the count, audit, and investigative functions.

[1]U. S. Navy Department, Office of the Chief of Bureau of Supplies and Accounts, Proceedings of the Navy Supply Conference, Athens, Georgia, 6-8 April 1964. (U. S. Government, 1964), pp. H9-H10.

[2]U. S. Navy Department, Office of the Chief of Bureau of Supplies and Accounts, Bureau of Supplies and Accounts Manual, Vol. II. (U. S. Government, 1965), paras. 24560-24602.

Since the resource dollar, with which supply support functions must be accomplished, is limited, and in view of the fact that supply support funds have remained at a constant level in the past five years[3], extensive use of labor saving devices to cope with increasing system demands have been required. Automation of the warehousing or storekeeping function and the uniform automatic data processing system for stock records are two examples of this development required to achieve optimum use of resources.

Accordingly, this paper proposes that electronic data processing be used to accomplish the physical inventory reconciliation or pre-audit functions required in the physical inventory process. Since the pre-audit function is a natural for data processing (as will be demonstrated below), it is somewhat surprising that it hasn't been accomplished already. The only obvious explanation is that the continuous turn-over of EDP equipment in recent years coupled with the de-emphasis of the inventory function has precluded computerization of inventory functions.

The Equipment. The Data Processing Equipment chosen for this proposal was the IBM 1401 data processing system. This includes the 1401 processing unit, 1402 card read and punch unit, and 1403 printer. The IBM 1410-1301 data processing system which is the uniform data processing equipment at most naval stock points, was not used for two reasons. First, the proposal outlined below requires very simple data processing equipment with less than 4000 units of core memory. Since the 1410-1301 system is considerably larger and more sophisticated than the 1401

[3] Proceedings of the Navy Supply Conference, op. cit. p. H-22.

system, the cost of machine time on the 1401 system is considerably less than the 1410-1301 system. Since both systems are commonly available at naval stock points as figure 6-1 indicates, it seems reasonable to select the equipment which can be used with the minimum associated costs.

The second reason for choosing the 1401 system was to make the program available to other activities which perform physical inventory functions such as naval shipyards and air stations. Since the 1410-1301 system is primarily a stock point system and the 1401 is frequently available at naval shipyards and air stations (see figure 6-1) as well as stock points, it was the system selected.

The Program. In order to demonstrate the use of EDP equipment to accomplish the pre-audit function, model 1401 programs have been written and tested using sample data. The program was written using the procedures outlined in Volume II of the Bureau of Supplies and Accounts Manual[4] for conducting the physical inventory and the experiences of the author as the Inventory Officer at the U. S. Naval Supply Center at Pearl Harbor, Hawaii, during the years 1959-1962. Where local procedures differ from the procedures of the BUSANDA Manual, the program would require slight modification. Additionally, some modifications might also be required to accommodate the program output to be compatible with stock records maintained on the computer (such as those activities using the 1410-1301 system) and those who maintain stock records on IBM cards (commonly termed the "off-set" system). The program was also written using existing inventory card format.

[4] Bureau of Supplies and Accounts Manual, loc. cit.

NAVAL SUPPLY CENTERS NAVAL SUPPLY DEPOTS	NAVAL SHIPYARDS	NAVAL & MARINE AIR STATIONS
Bayonne	Portsmouth	China Lake
Norfolk	San Francisco	Cherry Point
Oakland	Bremerton	Corpus Christi
Pearl Harbor	Pearl Harbor	Jacksonville
San Diego	Boston	Norfolk
Philadelphia		Barber's Point
Mechanicsburg		Pensacola
		Point Mugu
		Quonset Point

FIGURE 6-1

INVENTORY OF IBM 1401 COMPUTER SYSTEMS AT

MAJOR SUPPLY ACTIVITIES OF THE NAVAL SUPPLY SYSTEM*

* Source: U. S. Government, Executive Office of the President, Bureau of the Budget, Inventory of Automatic Data Processing (ADP) Equipment in the Federal Government (U. S. Government Printing Office, August 1962)

As outlined in Chapter IV, there are two distinct counts of material made for each inventory of material, the first count, and the second count, or "recount", made for material out of balance with records. Each of these require differing audit efforts. The attempt to program these efforts required writing two different 1401 programs and the proposal described below has been broken down into two programs.

Flow Charts. For those readers experienced in data processing terminology, Appendix A contains condensed flow charts for each of the audit functions that it is proposed to eliminate by use of the IBM 1401 system. Appendix B contains the original source programs written in mnemonic codes. Appendix C contains the standard and condensed object program listing. Appendix D includes the sample outputs. The reader who wishes a complete narrative of the programs will find them described below.

Program Narrative. Physical Inventory begins with the preparation for count. Warehouse locator cards for the material to be counted are pulled and submitted to the data processing department. From these cards, the data processing department prepares the Stock Inventory Tally Card (NAVSANDA Form 987). The inventory count card has punched on it the stock number, at least one location, unit of issue, and a serial number. The cards are sorted in location sequence for ease in count. The serial numbers are used to re-sort the cards back into stock number sequence and also to insure that no cards are unaccounted for after count.

At the Naval Supply Center at Pearl Harbor, three cards were prepared for each stock number for use in each of the three possible locations for

material (retail, backup, and bulk). However, with the proposed program of this paper, the three possible counts are accommodated on one card.

Simultaneously, with preparation of the count cards from warehouse locator cards, financial detail cards are prepared from the stock record cards held by the stock control division or stock records maintained in the computer. These cards indicate the same information as the locator cards, but in addition indicate the current stock balance at inventory cut-off time and unit price. The financial detail cards are used for inventory reconciliation and to prepare adjustments to stock records and financial ledgers. Since financial detail cards would not be required for the program in this paper, they have been included in the information punched on to the Stock Inventory Tally Card (NAVSANDA Form 987).

Figure 6-2A shows a sample of these cards with the necessary information punched and interpreted on the Stock Inventory Tally Card. Figure 6-2B shows a listing of the sample data used to test the program. In actual practice, the current stock balance and perhaps the unit price would not be interpreted since it is standard practice in inventory not to allow the counters to know what the balance actually is to insure an unbiased count, but for the purposes of illustration, this information was interpreted.

The reader is cautioned not to try to interpret the information printed on the card illustrated in figure 6-2A as well as the remaining illustrations in this chapter by using the description on the card itself. The correct interpretation will be provided in the narrative. Modifications to the card format have been made since its design in 1954 and

furthermore some slight modifications were made to accommodate the requirements of the program in this study. Accordingly, the information on the Stock Inventory Tally Cards illustrated in figure 6-2A is as follows:

Card Column	Information
06-21	Stock number
23-32	Location (normally the retail location)
34-43	Unit price
44-45	Unit of issue
47-52	Stock record balance at cut-off
60-72	Reserved for count operation
74-80	Serial number of the card

The count operation under the proposed program is essentially the same as described in Chapter IV of this paper with one major exception. In order to mechanize the reconciliation function, it is desirable to have source data in machineable format. This has been accomplished by use of the portable punch machine. An example of this type machine is the Addressograph Portable Punch Machine described in Appendix E. Instead of recording counts in pencil on the tally card as was indicated in Chapter IV, the counters record the count on the card by punching the tally card.

The reader who has had experience in the physical inventory area may question the ability of inventory counters to use a portable punch machine with the same accuracy as recording the count in pencil directly on the card. In 1962 the author borrowed several of the Addressograph machines to study the possibility of using them for inventory count recording at the Naval Supply Center, Pearl Harbor, Hawaii. With only a very minimal amount of training, the machines were used to count a portion of ordnance repair parts. This particular type material was

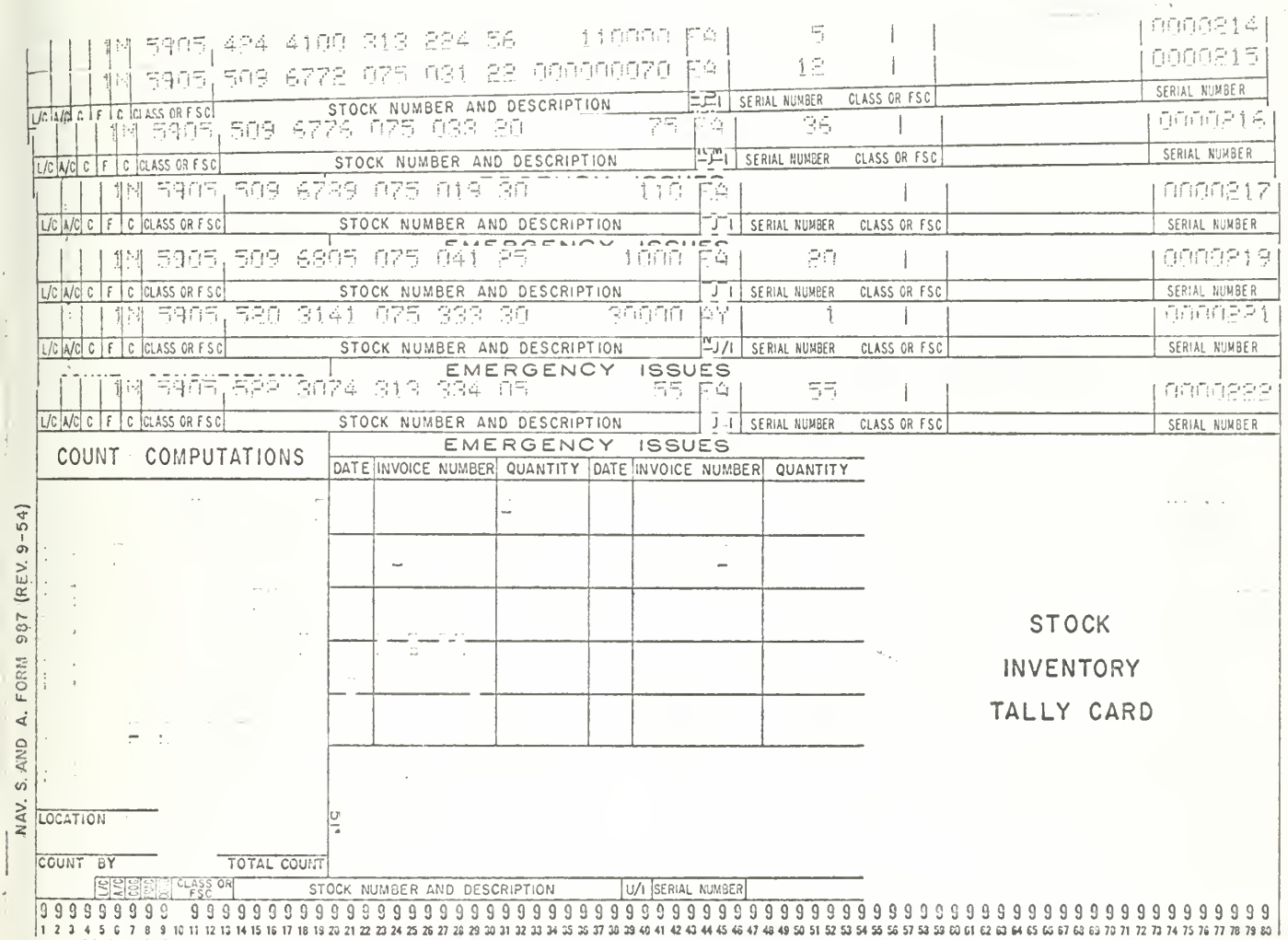


FIGURE 6-2A

SAMPLE OF INVENTORY TALLY CARDS BEFORE FIRST COUNT

```
1N 5905 522 3074 313 334 05          55 EA      55                    0000222
1N 5905 520 3141 075 333 30       30000 AY       1                    0000221
1N 5905 509 6805 075 041 25        1000 EA      20                    0000219
1N 5905 509 6789 075 019 30         110 EA                            0000217
1N 5905 509 6776 075 033 20          75 EA      36                    0000216
1N 5905 509 6772 075 031 22   000000070 EA      12                    0000215
1N 5905 424 4100 313 224 56      110000 EA       5                    0000214
```

CARD COLUMN	INFORMATION
06-21	STOCK NUMBER
23-32	LOCATION (NORMALLY THE RETAIL LOCATION)
34-43	UNIT PRICE
44-45	UNIT OF ISSUE
47-52	STOCK RECORD BALANCE AT CUT-OFF
60-72	RESERVED FOR COUNT
74-80	SERIAL NUMBER OF THE CARD

FIGURE 6-28

LISTING (PARTIAL) OF SAMPLE TEST DATA BEFORE COUNT

selected because historically, the ordnance repair parts inventories for the test had about the lowest inventory errors, and thus errors attributable to use of the machine could more easily be traced. For the test, counters counted equal numbers of ordnance items with the machine and without it using the hand-written method of recording the count. The results showed no significant difference between the two methods. Inventory count personnel were enthusiastic about using the machines. Unfortunately plans to use them could not be adopted because of a freeze on programming due to transition from the 1401 to the 1410-1301 data processing systems.

The author also discussed the possibility of using portable punch machines for inventory count with inventory personnel at the U. S. Naval Supply Center, Oakland, California. Although they admitted to the possibilities of the machine, their chief objection was that inventory personnel would be required to add up the total count before recording it on the card using the machine where formerly they only needed to record the number of boxes, bales, etc., and the number of items in each box, bale, etc., (2 x 48, 44 x 36, 1 x 144, etc.). While admitting that this is a valid objection and one which was not accounted for in the program, it could easily be overcome by redesign of the tally card to allow more count area and program the computer to make the multiplications necessary to arrive at total count for each warehouse area (retail, backup, and bulk).

Furthermore, the portable punch machines have been used by civilian business firms for a number of years to accomplish inventory as well as a host of other similar uses without serious objection or complications and with little initial training in their use.

Figure 6-3A shows the tally cards after the counts have been recorded. Figure 6-3B is a listing of all the data used to test the program. As was mentioned above, card columns 60-72 have been reserved for punching the count with the machines. This field is further broken down into the following sub-divisions:

Card Column	Information
60-62	Total count in the bulk storage location
63-65	Total count in the backup storage location
66-68	Total count in the retail storage location
69-70	Adjustments to be subtracted from the inventory count
71-72	Adjustments to be added to the inventory counts

The adjustment columns deserve further explanation. Since at most activities, at least high priority issues are made while inventory is going on, it becomes necessary to adjust inventory count to reflect issues made before count and after stock control cutoff. Normally, receipts and low priority issues are not processed until after inventory, but if necessary, they can be handled by making the proper adjustment to the count. This is normally a count function and all paperwork pertaining to a group of material under inventory is passed to them during inventory for appropriate adjustment if necessary. The adjustments are recorded separately from the count (note the "emergency issues" column on the example in figure 6-3A) for ease in audit or investigation in case of a discrepancy. Thus the adjustments field has been reserved for this purpose under the proposed program.

Once the count has been concluded, the tally cards are submitted directly to the data processing department. The cards must first be

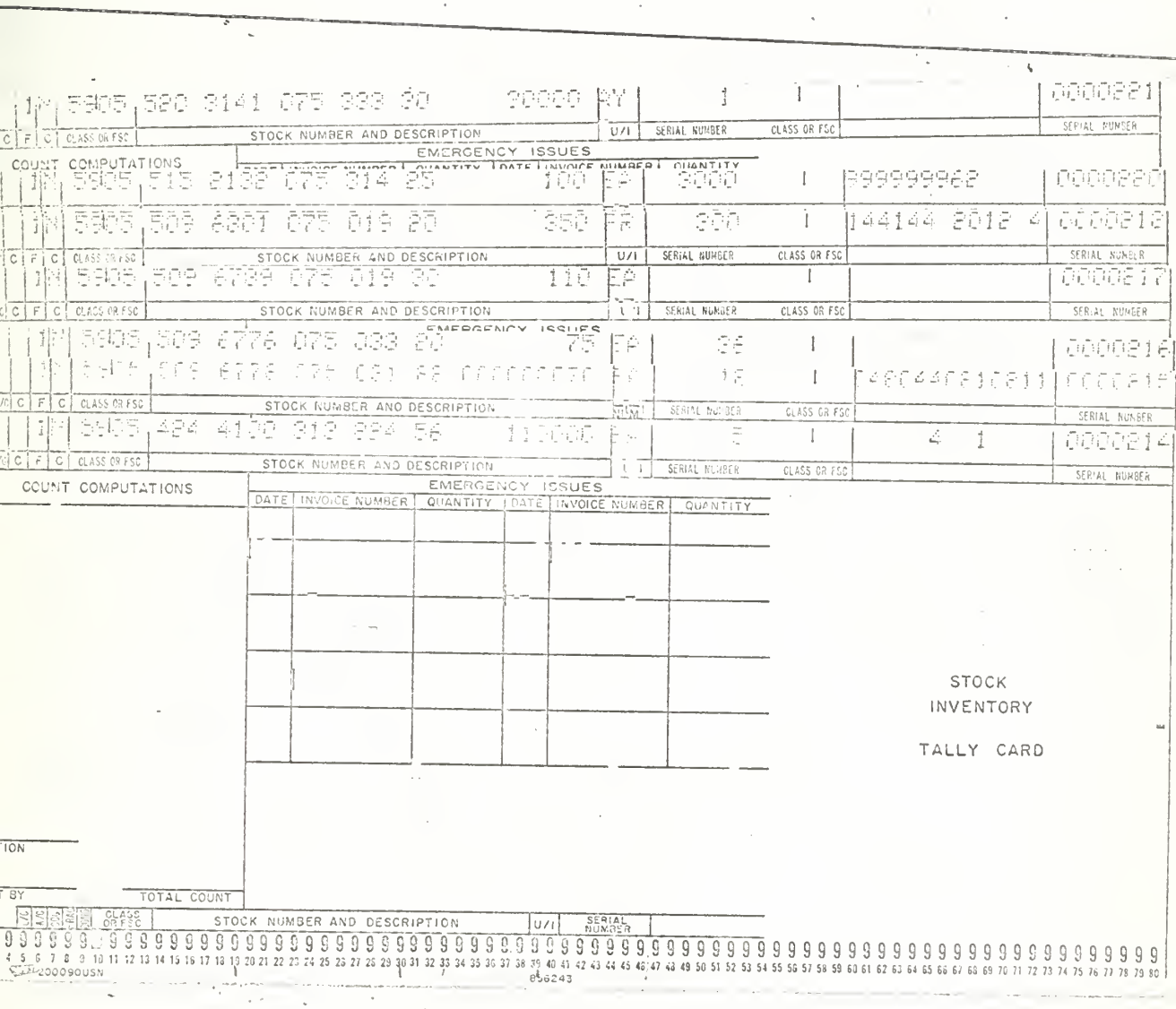


FIGURE 6-3A

SAMPLE OF INVENTORY TALLY CARDS AFTER COUNT

STOCK NUMBER	LOCATION	PRICE	UI	STK REC BAL	COUNT	SER NO
1N 5905 424 4100	313 224 56	110000	EA	5	4 1	0000214
1N 5905 509 6772	075 031 22	000000070	EA	12	0480440210211	0000215
1N 5905 509 6776	075 033 20	75	EA	36		0000216
1N 5905 509 6789	075 019 30	110	EA			0000217
1N 5905 509 6801	075 019 20	350	PR	300	144144 2012 4	0000218
1N 5905 509 6805	075 041 25	1000	EA	20	10 10 1	0000219
1N 5905 515 2132	075 314 25	100	EA	3000	999999962	000022
1N 5905 520 3141	075 333 30	30000	AY	1		0000221
1N 5905 522 3074	313 334 05	55	EA	55	36. 36 1	0000222
1N 5905 522 3171	313 122 07	21	EA	329	30 32 4	0000223
1N 5905 525 2130	075 033 10	000001050	EA	300	1441440040408	0000224
1N 5905 525 2131	075 044 05	25	EA		1	0000225
1N 5905 525 2160	075 316 25	2250	CL	21	6 6 6 3	0000226
1N 5905 525 2162	075 333 20	4900	BG	4	1 2 2	0000227
1N 5905 526 3131	075 122 20	2300	EA	4	3 1 2	0000228
1N 5905 526 3400	075 333 25	7200	AY	10	0040020030001	0000229
1N 5905 530 2104	075 020 22	14420	EA	22	11 9 2	000023
1N 5905 530 3144	075 040 25	14200	GL	20	15 3 3 1	0000231
1N 5905 530 3233	313 072 30	20	EA	552	300144110 4 2	0000232
1N 5905 535 2989	313 333 30	10500	EA	2	1 1 1	0000233
1N 5905 535 2990	313 333 32	10000	PR	4	1 1 2	234
1N 5905 535 3221	313 334 06	200	EA	220	10144 66	235
1N 5905 535 3224	313 334 07	40	EA	100	50 50 10 10	236
1N 5905 535 3400	313 336 05	565	EA	20	20	237
1N 5905 535 3401	313 336 06	565	EA			238
1N 5905 540 2120	313 333 20	400	PR	1	1	239
1N 5905 540 2125	313 333 21	2500	EA	50	020020	24
1N 5905 540 2130	313 333 26	30500	EA	4	10	241
1N 5905 545 1904	075 122 05	2005	EA	219	100100 5	242
1N 5905 545 1905	075 123 05	2565	EA	9	11	243
1N 5905 545 2120	075 144 05	5230	EA	8	0020020050000	0000244
1N 5905 545 2220	075 144 07	000000150	EA	22	0040100090000	0000245
1N 5905 545 2431	075 145 04	000000030	EA	433	1003000400101	0000246
1N 5905 550 2999	313 130 24	44	EA	722	3500503100005	0000247
1N 5905 565 4144	313 130 05	250	PR	644	300220 80	248
1N 5905 565 5600	313 135 05	250	EA	605	300300	249
1N 5905 565 7111	313 135 04	40000	EA	10	4 6 1 1	25
1N 5905 620 2919	313 135 03	20005	EA	1	1	251
1N 5905 622 3201	075 440 03	005	EA	2	1 10101	0000252
1N 5905 622 3202	075 440 04	10	EA	3000	900900900	253

FIGURE 6-33

LISTING OF INVENTORY TEST DATA
SHOWING INVENTORY COUNTS RECORDED IN COLUMNS 60-72

sorted into stock number sequence and hand-written cards prepared by count personnel for material for which no stock or location card existed, and cards whose total count exceeded the length of the count field (redesign of the tally card would preclude this latter requirement) must be keypunched.

The cards are then introduced directly into the 1401 computer using the Initial Inventory Program of Appendix B for reconciliation. This program then performs the entire pre-audit function described in Chapter IV. Figure 6-3A illustrates the appearance of the tally cards with the counts punched on them ready for use by the computer. The count information has been interpreted for illustrative purposes only. In actual practice this step would not be required.

The first data card read into the program records on the printed output the cognizance symbol, federal group, and class inventoried and the date the initial or first count was completed. The remaining data cards are the tally cards indicated above. Each card is read in turn. The program first calculates the total counts by adding the counts punched for the bulk, backup, and retail locations. It also includes any counts punched in either adjustment column. In the next step, the total count is compared with the stock balance at cutoff. This comparison then determines that there is either a gain (inventory count greater than stock balance), a loss (inventory count less than stock balance), or a "no adjustment" (inventory count equals stock balance).

If a "no adjustment" occurs, the program is designed to calculate the value of the material and print out the stock and inventory balance and value. If a gain or loss has occurred, the computer must check to

see if a recount is necessary before indicating an adjustment of stock records to match inventory count. The criteria established to determine the necessity for second count is a local command decision and no standard has been set.[5] For purposes of the model program, the criteria were those in effect at the Naval Supply Center, Pearl Harbor during the period 1959-62 when the author was Inventory Officer at that activity. Different criteria would require only slight modification to the proposed program. The criteria established was that if the gain or loss was over $100.00 in value, a complete gain or loss (i.e., zero stock balance with some inventory or vice versa), or a gain or loss exceeding ten percent of the stock balance, the item would be recounted.

Accordingly, the program makes these checks in the order described above. If a recount is necessary, a new Stock Inventory Tally Card in a different color than the original card is punched. Figure 6-4A shows the cards prepared using the proposed program with test data. The tally cards are identical in format with the tally cards used for the initial count. Figure 6-4B lists all the recounts generated using the test data.

If none of the criteria are met or exceeded, the gain or loss then becomes a "minor adjustment" and stock record cards can be adjusted to reflect inventory count without further audit or count. To accomplish this function, another tally card is prepared which indicates a minor adjustment gain or loss and provides the amount by which the stock records should be adjusted as well as other information (stock number, price, etc.) as shown in figure 6-5A which are the results using the test data with the

[5] Bureau of Supplies and Accounts Manual, op. cit., para. 24566.

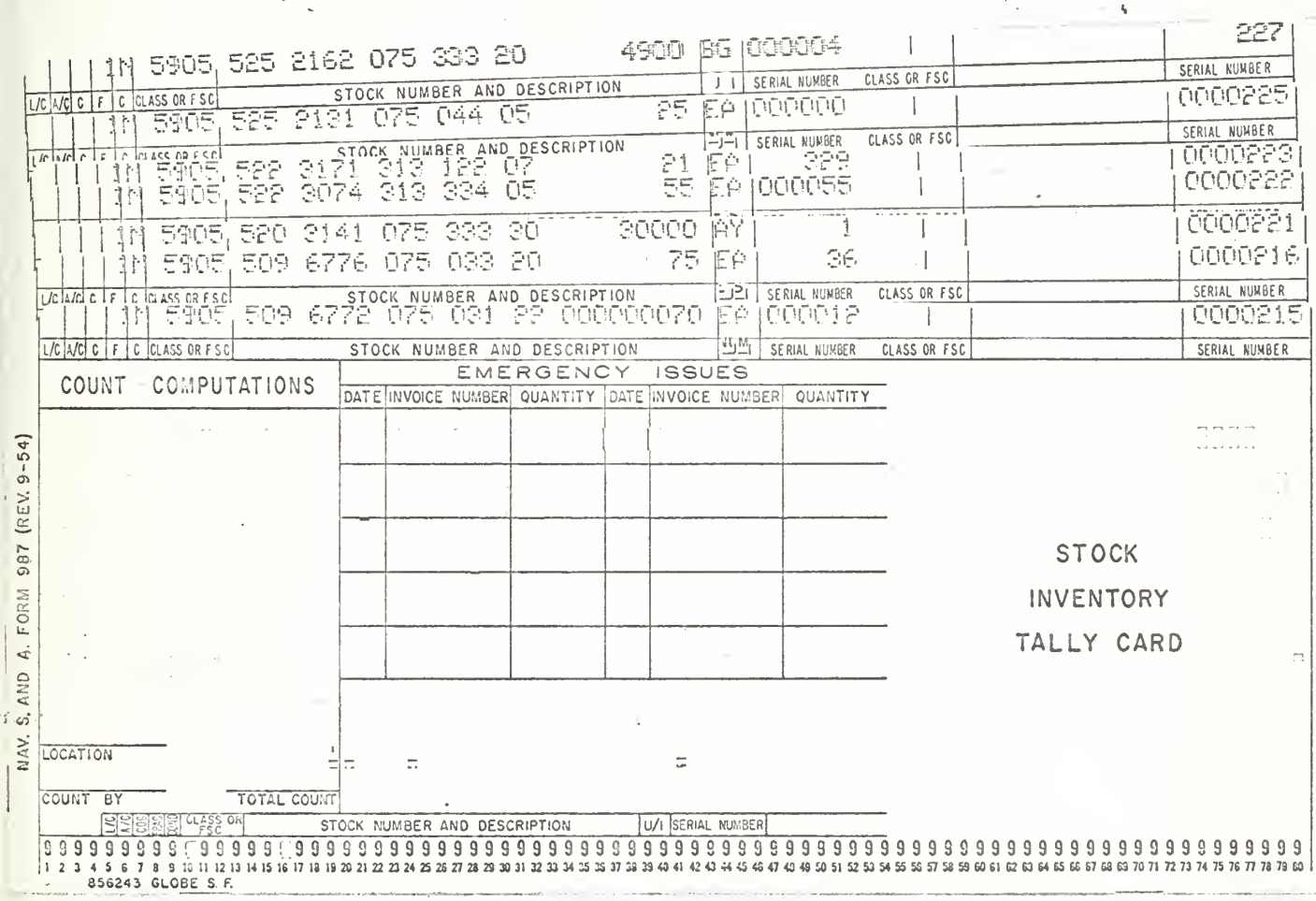


FIGURE 6-4A

SAMPLE OF RECOUNT CARDS PREPARED BY INITIAL PROGRAM

STOCK NUMBER	LOCATION	PRICE	UI	STK REC BAL	COUNT	SER NO
1N 5905 509 6772	075 031 22	000000070	EA	000012		0000215
1N 5905 509 6776	075 033 20	75	EA	36		0000216
1N 5905 520 3141	075 333 30	30000	AY	1		0000221
1N 5905 522 3074	313 334 05	55	EA	000055		0000222
1N 5905 522 3171	313 122 07	21	EA	329		0000223
1N 5905 525 2131	075 044 05	25	EA	000000		0000225
1N 5905 525 2162	075 333 20	4900	BG	000004		227
1N 5905 535 2989	313 333 30	10500	EA	2		0000233
1N 5905 535 3224	313 334 07	40	EA	000100		236
1N 5905 540 2125	313 333 21	2500	EA	50		24
1N 5905 540 2130	313 333 26	30500	EA	4		241
1N 5905 545 1904	075 122 05	2005	EA	219		242
1N 5905 545 1905	075 123 05	2565	EA	000009		243
1N 5905 565 4144	313 130 05	250	PR	644		248

FIGURE 6-4B

COMPLETE LISTING OF RECOUNT CARDS PREPARED BY INITIAL PROGRAM

proposed program. Figure 6-5B contains a listing of the same information.

At this point, the program branches to calculate the value of the stock per inventory and per stock balance and prints the output as shown in Appendix D. Then the process is repeated until all of the data has been read. After the last card has been processed, the program prints out an inventory recapitulation which has been accumulated by the program. This recapitulation consists of the following information concerning the inventory:

a. Number of items inventoried

b. Number of minor adjustment gains

c. Number of minor adjustment losses

d. Number of items requiring recount

e. Value of minor adjustment gains

f. Value of minor adjustment losses

g. Value of recount gains

h. Value of recount losses

i. Total value of stock per inventory

j. Total value of stock per stock records

In addition to the above recapitulation, each line item has been recorded indicating the following information for each item:

a. Stock number, location, and unit of issue

b. Unit price

c. Stock balance (per stock records at "cutoff")

d. Inventory balance

e. Minor adjustment if applicable

f. Serial number of recounted items (for ease in locating initial inventory card if required and to insure all recount cards are returned)

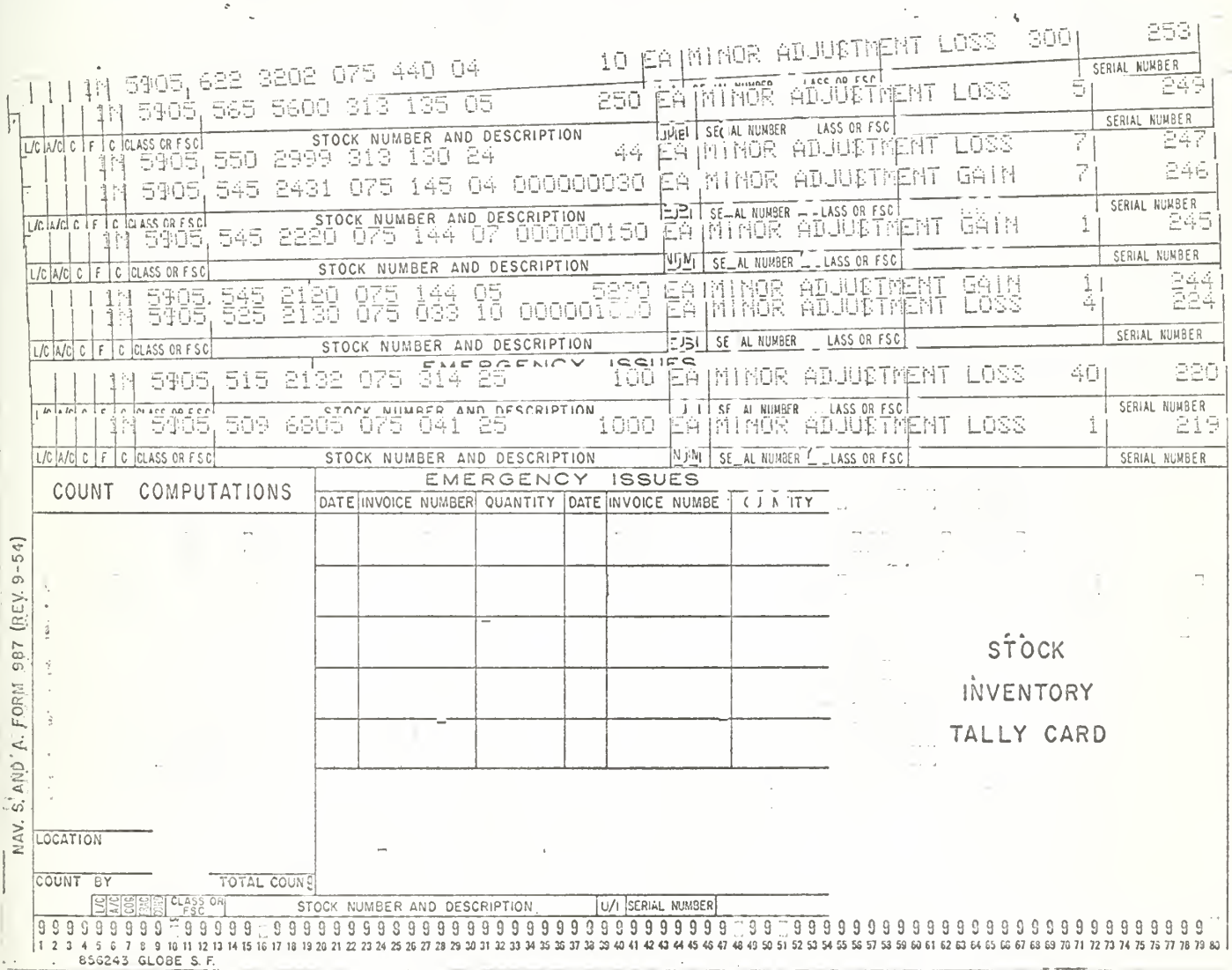


FIGURE 6-5A

MINOR ADJUSTMENT CARDS PREPARED BY INITIAL PROGRAM

```
1N 5905 509 6805 075 041 25       1000 EA MINOR ADJUSTMENT LOSS    1      219
1N 5905 515 2132 075 314 25        100 EA MINOR ADJUSTMENT LOSS   40       22
1N 5905 525 2130 075 033 10 000001050 EA MINOR ADJUSTMENT LOSS    4      224
1N 5905 545 2120 075 144 05       5230 EA MINOR ADJUSTMENT GAIN    1      244
1N 5905 545 2220 075 144 07  000000150 EA MINOR ADJUSTMENT GAIN    1      245
1N 5905 545 2431 075 145 04  000000030 EA MINOR ADJUSTMENT GAIN    7      246
1N 5905 550 2999 313 130 24         44 EA MINOR ADJUSTMENT LOSS    7      247
1N 5905 565 5600 313 135 05        250 EA MINOR ADJUSTMENT LOSS    5      249
1N 5905 622 3202 075 440 04         10 EA MINOR ADJUSTMENT LOSS  300      253
```

FIGURE 6-5B

COMPLETE LISTING OF MINOR ADJUSTMENT CARDS PREPARED BY INITIAL PROGRAM

g. Recount code (indicates which criteria was met or exceeded that required a recount)

h. Inventory value (value of each line item per inventory count)

Appendix D is the printed output generated from use of test data with the proposed program of Appendix B.

The inventory reconciliation or pre-audit effort is by no means complete at this point. The next stage in the physical inventory process requires recounting all of the material indicated by the reconciliation process described in the initial inventory program above. Once this has been completed, the recounted tally cards are used as input data for the final inventory summary program. Appendix A contains the flow chart for this function, Appendix B the original source program written in mnemonic code, Appendix C includes the object program listing, and Appendix D contains the sample output. Figures 6-6A and 6-6B show and list the recount tally cards after the recount has been completed.

This second program follows the same methodology as the first. The differences lie in the criterion established for making a final adjustment of stock records to reflect inventory count (after recount) or conducting an investigation which requires an analysis of each transaction which occurred for a particular item back to the time of the previous inventory. Since investigations are a very time consuming and costly function, the BUSANDA Manual has established this criterion at $1000.00.[6]

Accordingly, the proposed program has been written in much the same way as the first except it checks to see if a particular gain or loss

[6] Ibid.

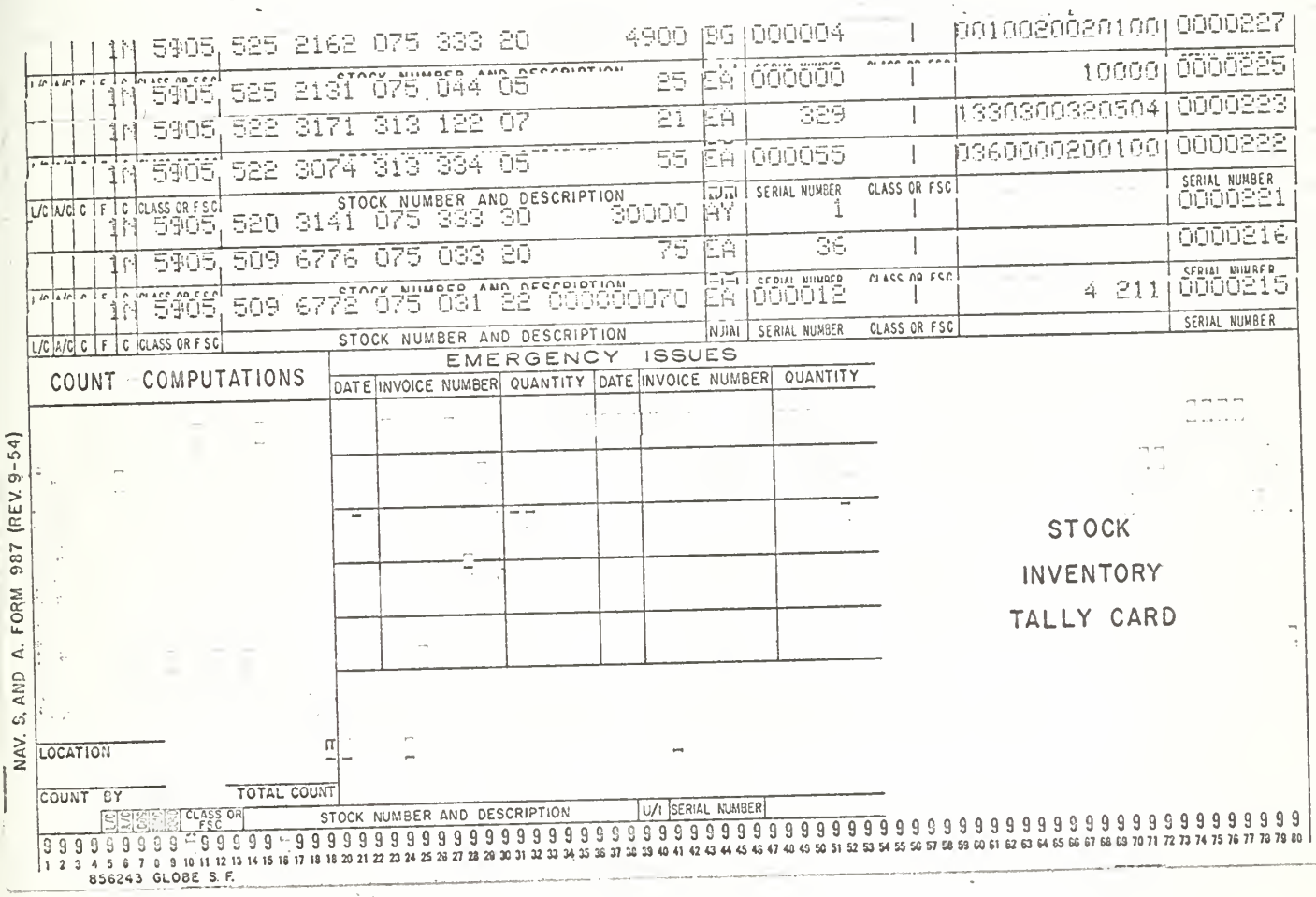


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FIGURE 6-6A

SAMPLE OF INVENTORY TALLY CARDS AFTER RECOUNT

STOCK NUMBER	LOCATION	PRICE	UI	STK REC BAL	COUNT	SER NO
1N 5905 509 6772	075 031 22	000000070	EA	000012	4 211	0000215
1N 5905 509 6776	075 033 20	75	EA	36		0000216
1N 5905 520 3141	075 333 30	30000	AY	1		0000221
1N 5905 522 3074	313 334 05	55	EA	000055	0360000200100	0000222
1N 5905 522 3171	313 122 07	21	EA	329	1330300320504	0000223
1N 5905 525 2131	075 044 05	25	EA	000000	10000	0000225
1N 5905 525 2162	075 333 20	4900	BG	000004	0010020020100	0000227
1N 5905 535 2989	313 333 30	10500	EA	2	0010010100000	0000233
1N 5905 535 3224	313 334 07	40	EA	000100	0500000000010	236
1N 5905 540 2125	313 333 21	2500	EA	50	0200200050000	24
1N 5905 540 2130	313 333 26	30500	EA	4	0010010010000	241
1N 5905 545 1904	075 122 05	2005	EA	219	1001000140005	242
1N 5905 545 1905	075 123 05	2565	EA	000009	0000000110500	243
1N 5905 565 4144	313 130 05	250	PR	644	800000	248

FIGURE 6-68

COMPLETE LISTING OF INVENTORY TALLY CARDS AFTER RECOUNT

exceeds $1000.00. If it does, it is so indicated on the printed output.

In addition, an adjustment card (see figures 6-7A and 6-7B) is prepared for all gains and losses so that stock records can be adjusted to reflect the final inventory count and the control inventory maintained over that portion of stock records and material in the warehouse can be lifted and these two functions can return to processing all receipts and issues in the normal fashion. Investigations are conducted independently of this control.

The printed output that is shown in Appendix D using the test data indicates for each line item recounted the following information:

a. Stock number, location, and unit of issue

b. Price

c. Stock balance

d. Inventory balance

e. Adjustments required

f. Value of adjustments

g. Serial number of those items requiring investigation

h. Value of item per inventory count

The second program also prints out a recapitulation of all the recounted items. The following information is included in this recount recapitulation:

a. Number of items recounted

b. Number of final adjustment gains

c. Number of final adjustment losses

d. Number of items requiring investigation

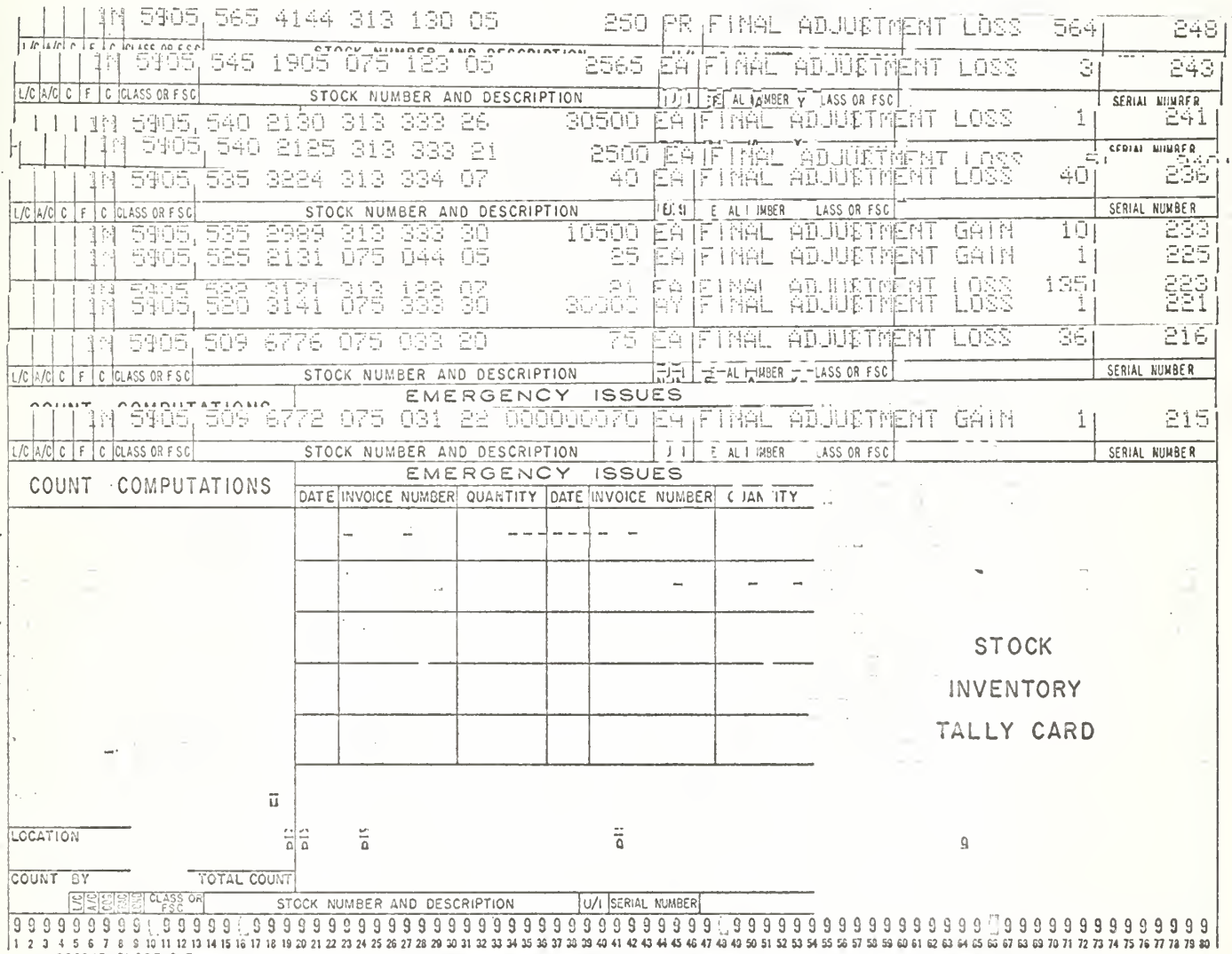

FIGURE 6-7A

SAMPLE OF FINAL ADJUSTMENT CARDS PREPARED BY FINAL PROGRAM

```
1N 5905 509 6772 075 031 22 000000070 EA FINAL ADJUSTMENT GAIN    1      215
1N 5905 509 6776 075 033 20        75 EA FINAL ADJUSTMENT LOSS   36      216
1N 5905 520 3141 075 333 30     30000 AY FINAL ADJUSTMENT LOSS    1      221
1N 5905 522 3171 313 122 07        21 EA FINAL ADJUSTMENT LOSS  135      223
1N 5905 525 2131 075 044 05        25 EA FINAL ADJUSTMENT GAIN    1      225
1N 5905 535 2989 313 333 30     10500 EA FINAL ADJUSTMENT GAIN   10      233
1N 5905 535 3224 313 334 07        40 EA FINAL ADJUSTMENT LOSS  40      236
1N 5905 540 2125 313 333 21      2500 EA FINAL ADJUSTMENT LOSS    5      24
1N 5905 540 2130 313 333 26     30500 EA FINAL ADJUSTMENT LOSS    1      241
1N 5905 545 1905 075 123 05      2565 EA FINAL ADJUSTMENT LOSS    3      243
1N 5905 565 4144 313 130 05       250 PR FINAL ADJUSTMENT LOSS  564      248
```

FIGURE 6-7B

LISTING OF FINAL ADJUSTMENT CARDS PREPARED BY FINAL PROGRAM

e. Value of final adjustment gains

f. Value of final adjustment losses

g. Value of investigation gains

h. Value of investigation losses

i. Value of recounted items per inventory

j. Value of recounted items per stock balance

The proposed programs described above for use on the IBM 1401 system to accomplish the physical inventory pre-audit function have a few limitations, some of which have already been discussed and therefore, will be mentioned only briefly below. The advantages, however, over the previous method of accomplishing this task are many and significant. The limitations and advantages will each be discussed in turn.

The programs were written for only one system which is not in universal use throughout supply activities of the Navy Supply System. However, computer application of this inventory function has been demonstrated and similar programs could be written for use with other computer systems. The card format used to test the program is not optimal. It was used to accommodate the present card design. Increased card space would permit counts beyond 2997 (the maximum count in the present format, i.e., 999 in each location). Probably the most serious limitation insofar as EDP operations are concerned, is use of the Stock Tally Card to prepare the adjustment cards. Under present procedures with both DSA and Navy Supply Systems, adjustments to records are done using NAVSTRIP[7] codes and symbols, the adjustment cards produced by the program probably would

[7]Navy Standard Requisition and Issue Procedures.

not be compatible with NAVSTRIP procedures and standards. The basic problem stems from the fact that the 1402 card read and punch machine has only one blank card feeder and in order to produce a recount card and adjustment card in the same program run with two different blank cards is beyond the capability of the machine. This objection could be remedied by running the adjustment cards generated in the program through conventional EAM equipment to produce the adjustment card in NAVSTRIP format or an additional program could be written to accomplish this on the IBM 1401 system.

The chief advantage of the proposed programs is of course the potential savings in manpower and money along with increased accuracy in the pre-audit effort. To illustrate, the author once again relates to his experiences as Inventory Officer at the Naval Supply Center, Pearl Harbor. At that activity the pre-audit division consisted of three stock clerks (GS-3) and a supervisor (GS-5) on a part-time basis. Using desk calculators, they were performing the same tasks that the above programs do. Their average production was approximately 200 line items per day (600 total) which was about the same number of line items as the count division could count. Thus, there was rarely a serious backlog in pre-audit. The cost of this function annually approximates $15,565 assuming the supervisor devotes fifty percent of his time with the pre-audit function.[8] Virtually the entire cost of this effort would be eliminated by computer application of this function (assuming computer costs are a fixed cost).

[8]Based on general schedule rates under the Federal Classification Act

Furthermore, as was described in Chapter IV, some of the EAM work in the inventory area has also been eliminated by this proposal. The need for financial detail cards to adjust financial and stock records and to provide recapitulation information is an example of this potential saving.

The programs also provide almost all the necessary information for reports made to higher management and financial adjustments can be made immediately without waiting for the processing of financial detail cards. This information is provided by the recapitulation information on the printed output of the two programs.

Finally, it seems that a greater degree of accuracy is obtained by use of the computer. The human errors of the pre-audit function have been eliminated. This advantage could only be proven however, by actual test of the programs on the job.

Chapter VII

CONCLUSIONS AND RECOMMENDATIONS

Conclusions. As long as humans err and accountability for material is required, inventories will be a part of stock point operations. The stock point manager who uses inventory information not only to update records, but also as a means of uncovering error trends in stock and record maintenance is using inventory to full advantage. Inventory can be the basis of preventing as well as correcting mistakes.

It seems clear that the Naval Supply System has learned a valuable lesson during the past ten years in shifting from a complete inventory to almost no inventory program and back again. The experience has shown that inventory should be one of the stock point manager's chief operational tools for maintenance of good storekeeping practices in the warehouse and sound records management in the fiscal and stock control side of the stock point.

Finally, the advent of automatic data processing has made profound changes on the operations of the supply system. It has enabled the system to be much more responsive to the customer while at the same time has allowed decreased inventory levels. Furthermore, some of the routine decision-making formerly done by stock control and inventory manager personnel is now accomplished by this ADP equipment available at most stock points. The system is only as good as the accuracy of the information provided to it, however, and the physical inventory process is the means by which this accuracy can be assured.

Recommendations. During the course of the study the potential of using automatic data processing equipment in other areas of the physical

inventory process became increasingly evident. Further study in this area would pay dividends in increasing the accuracy of inventory and decreasing the costs associated with it. The two chief recommendations in this area follow.

It would be beneficial to know the relationship of the different types of transactions on a particular item to inventory error. What are the chief contributors of stock imbalances? Is it receipt transactions, issues, re-warehousing, location errors, etc.? It is undoubtedly all of these, but if it were possible to learn which contributed the most, etc., it would enable ADP equipment to keep track of transaction information and predict when inventory was probably necessary.

ADP equipment could also be used to assist inventory audit personnel in the course of inventory investigations. The time associated with tracing transactions back to the previous inventory is enormous and may involve search through a three year pile of transaction registers. If these registers were maintained on magnetic tape, the ADP equipment could make the search in a few minutes. Whether this is a feasible recommendation in terms of the costs involved should be a matter of further study.

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APPENDIX A

IBM 1401 INVENTORY PROGRAMS

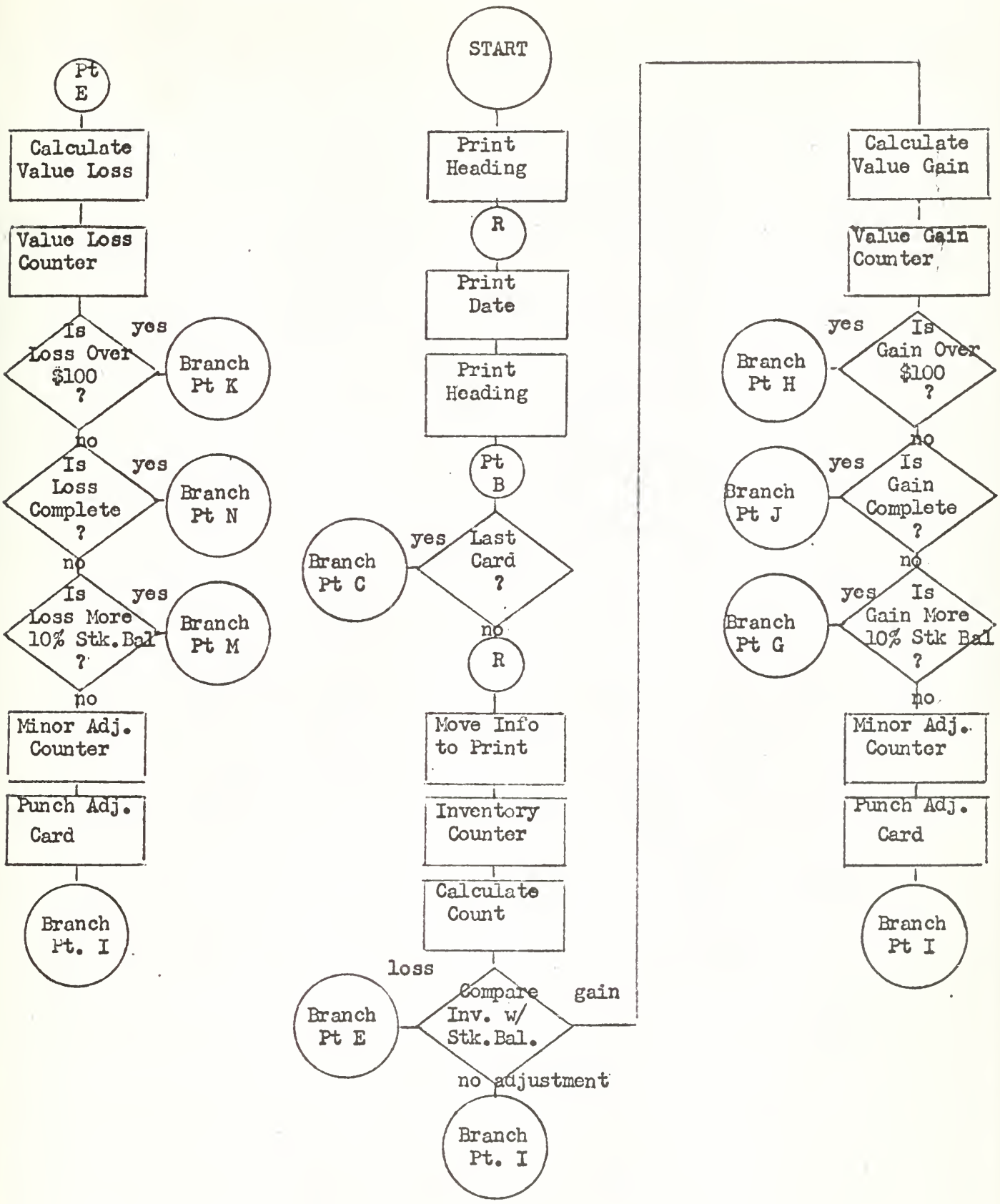
FLOW CHARTS

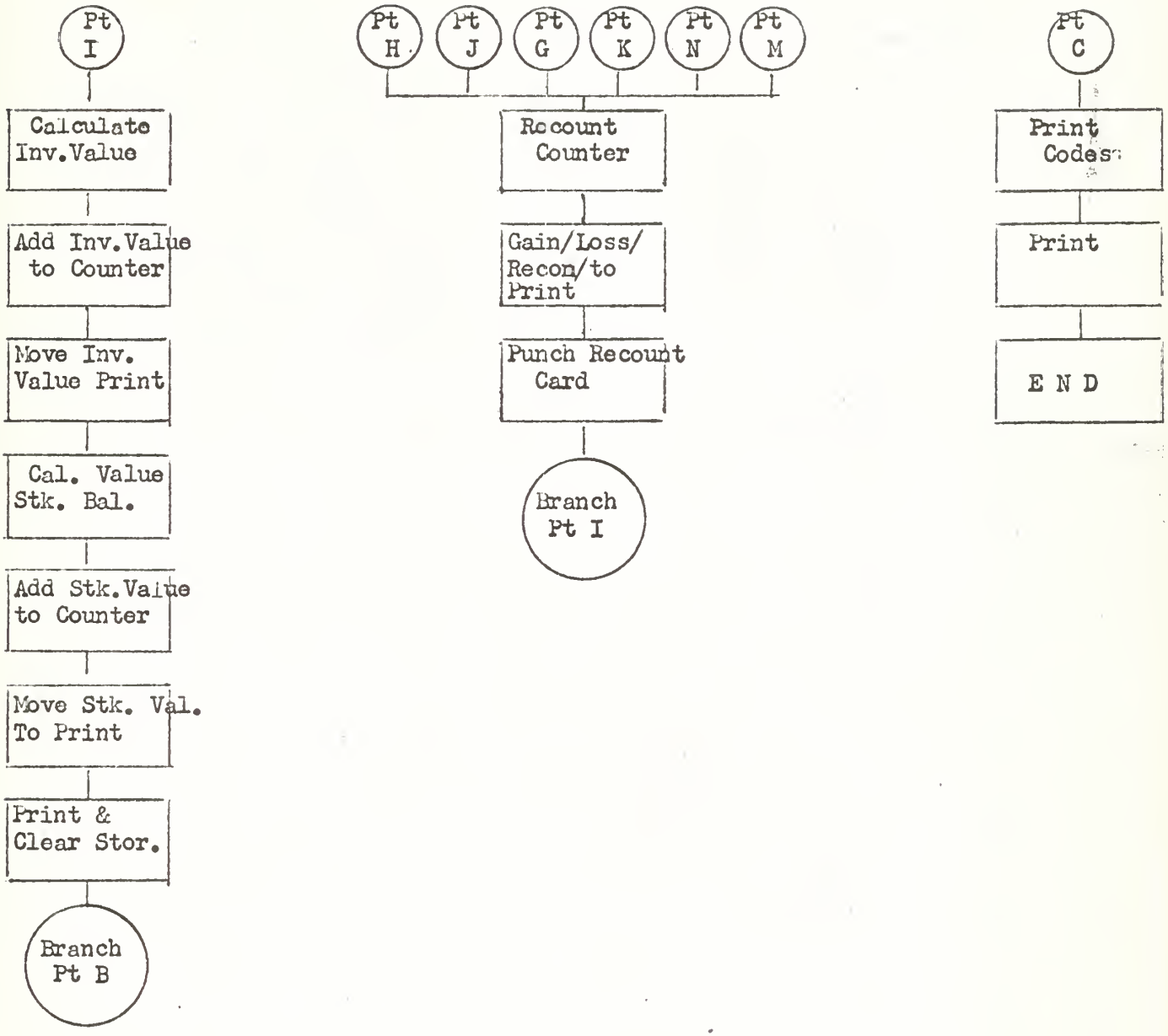
INITIAL INVENTORY SUMMARY

FINAL INVENTORY SUMMARY

INITIAL INVENTORY SUMMARY

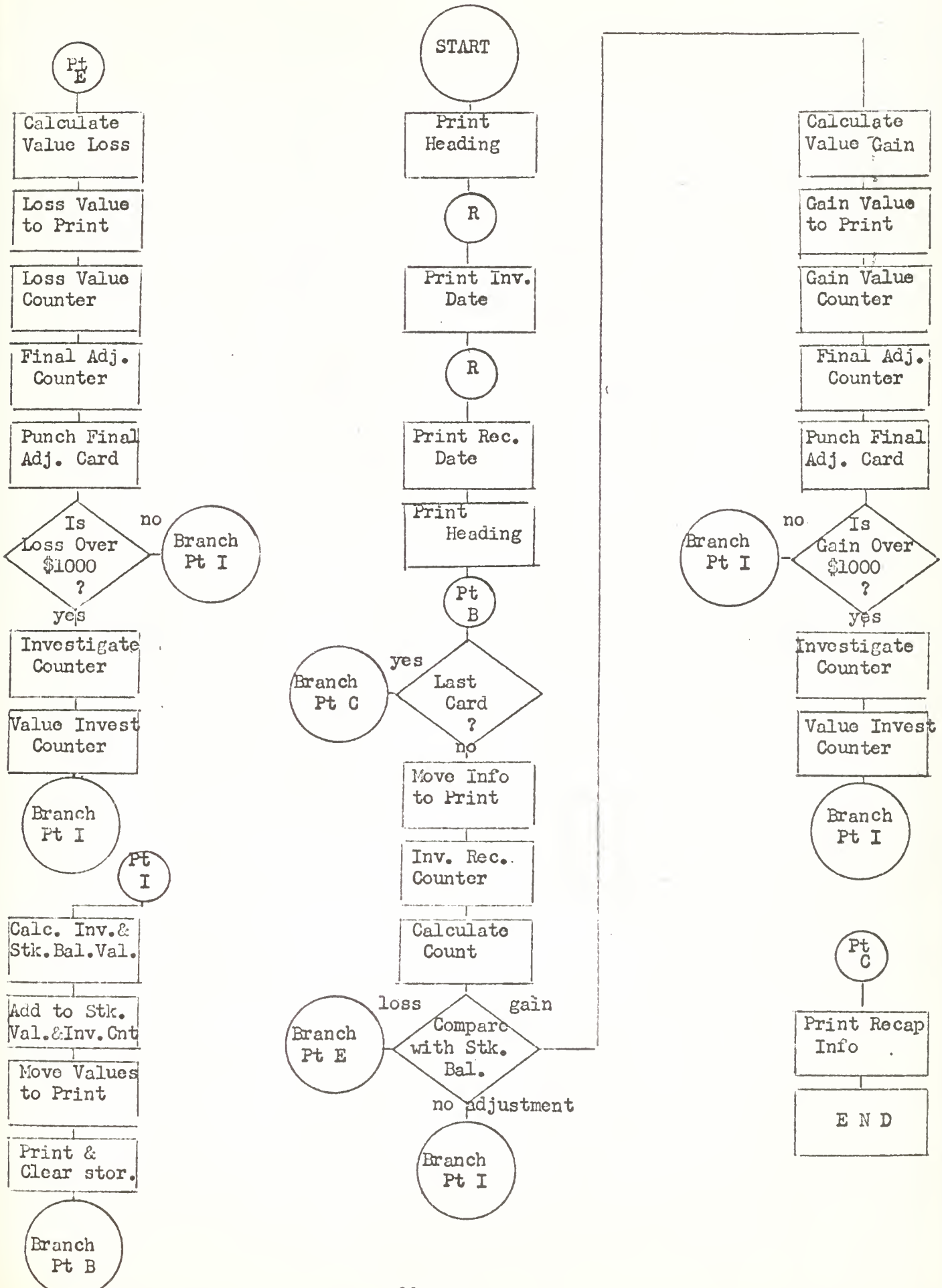
CONDENSED FLOW CHART INITIAL INVENTORY SUMMARY




Pt I
Calculate Inv.Value
Add Inv.Value to Counter
Move Inv. Value Print
Cal. Value Stk. Bal.
Add Stk.Value to Counter
Move Stk. Val. To Print
Print & Clear Stor.
Branch Pt B
Pt H
Pt J
Pt G
Pt K
Pt N
Pt M
Recount Counter
Gain/Loss/ Recon/to Print
Punch Recount Card
Branch Pt I
Pt C
Print Codes
Print
E N D

FINAL INVENTORY SUMMARY

CONDENSED FLOW CHART FINAL INVENTORY SUMMARY



APPENDIX B

SOURCE PROGRAM LISTINGS

INITIAL INVENTORY SUMMARY

FINAL INVENTORY SUMMARY

INITIAL INVENTORY SUMMARY

```
01010        ORG0333
01020 6WORKB DCW*       000000
0103030ZEROS DCW*       000000000000000000 *0    000
01040 9MUTPLRDCW*       000000000
0105024HEAD1 DCW*       SOME NAVAL SUPPLY CENTER
0106025HEAD2 DCW*       INITIAL INVENTORY SUMMARY
0107012HEAD3 DCW*       STOCK NUMBER
0108015HEAD4 DCW*       LOCATION    U/I
01090 5HEAD5 DCW*       PRICE
0110018HEAD6 DCW*       STOCK     INVENTORY
0111016HEAD7 DCW*       BALANCE  BALANCE
0112017HEAD8 DCW*       MINOR ADJUSTMENTS
0113015HEAD9 DCW*         GAINS  LOSSES
01140 8HEAD10DCW*       RECOUNTS
01150 8HEAD11DCW*       (SER.NO)
0116021HEAD12DCW*       GAIN/LOSS    INVENTORY
0117019HEAD13DCW*         VALUE        VALUE
01180 7HEAD14DCW*       RECOUNT
01190 5HEAD15DCW*        CODE
01200 1BODYA DCW*       A
02010 1BODYB DCW*       B
02020 1BODYC DCW*       C
02030 1BODYD DCW*       D
02040 1BODYE DCW*       E
02050 1BODYF DCW*       F
0206013CODE1 DCW*       RECOUNT CODES
0207017CODEA DCW*       A.  COMPLETE LOSS
0208017CODEB DCW*       B.  COMPLETE GAIN
0209032CODEC DCW*       C.  GAIN EXCEEDS TEN PERCENT OF
0210013CODE2 DCW*       STOCK BALANCE
0211032CODED DCW*       D.  LOSS EXCEEDS TEN PERCENT OF
0212032CODEE DCW*       E.  GAIN EXCEEDS ONE HUNDRED DOL
02130 4CODE3 DCW*       LARS
0214032CODEF DCW*       F.  LOSS EXCEEDS ONE HUNDRED DOL
02150 7BODYG DCW*       RECOUNT
0216024ENDA  DCW*       INVENTORY RECAPITULATION
0217020ENDB  DCW*       NO.ITEMS INVENTORIED
0218025ENDC  DCW*       NO.MINOR ADJUSTMENT GAINS
0219026ENDD  DCW*       NO.MINOR ADJUSTMENT LOSSES
0220020ENDE  DCW*       NO.ITEMS FOR RECOUNT
0301031ENDF  DCW*       VALUE OF MINOR ADJUSTMENT GAINS
0302032ENDG  DCW*       VALUE OF MINOR ADJUSTMENT LOSSES
0303022ENDH  DCW*       VALUE OF RECOUNT GAINS
0304023ENDI  DCW*       VALUE OF RECOUNT LOSSES
0305031ENDJ  DCW*       TOTAL VALUE STOCK PER INVENTORY
0306032ENDK  DCW*       TOTAL VALUE STOCK PER STOCK BALA
03070 3ENDL  DCW*       NCE
03080 5NOINV DCW*       00000
03090 5NOGAINDCW*       00000
03100 5NOLOSSDCW*       00000
03110 5NOREC DCW*       00000
03120 8GAIVALDCW*       00000000
03130 8LOSVALDCW*       00000000
03140 8RELVALDCW*       00000000
```

```
03150 8RFGVALDCW*       00000000
03160 8INVVALDCW*       00000000
03170 8STKVALDCW*       00000000
03180 6BODINVDCW*       000000
03190 6WORKC DCW*       000000
03200 6WORKD DCW*       000000
03210 6MGAVALDCW*       000000
03220 6MLOVALDCW*       000000
0401012WORKE DCW*       000000000000
04020 6WORKF DCW*       000000
04021 5WORKG DCW*       00000
0403030AREA  DCW*       000000000000000000000000000000
04040 1ONE   DCW*       1
0405012HUNDRDDCW*       000000010000
04060 1FIVE  DCW*       5
0407012CONT1 DCW*       $     ,  0.
0408011MUTCNDDCW*       00000000000
0409021BODYL DCW*       MINOR ADJUSTMENT LOSS
0410021BODYH DCW*       MINOR ADJUSTMENT GAIN
05010  START SW 0001                      W/M IN READ AREA
05020        MCWHEAD1      0272          PRINT HEADING
05030        W
05040        CS 0272
05050        MCWHEAD2      0273
05060        W
05070        CS 0273
05080        CC                          LSKIP THREE
05090        R                            READ INV DATE
05100        MCW0080       0280           MOVE TO PRINT
05110        W                            PRINT INV DATE
05120        CS 0080
05130        CS 0280
05140        CC                          LSKIP THREE
05150        MCWHEAD3      0212           PRINT HEADING
05160        MCWHEAD5      0230
05170        MCWHEAD6      0252
05180        MCWHEAD8      0271
05190        MCWHEAD10     0281
05200        MCWHEAD14     0290
06010        MCWHEAD12     0319
06020        W
06030        CS 0319
06040        CS 0299
06050        MCWHEAD4      0215
06060        MCWHEAD7      0250
06070        MCWHEAD9      0269
06080        MCWHEAD11     0281
06090        MCWHEAD15     0288
06100        MCWHEAD13     0317
06110        W
06120        CS 0317
06130        CS 0299
06140        CC                          LSKIP THREE
06150  PTA   SW 0006       0023
06160        SW 0034       0044           WMS IN READ AREA
06170        SW 0047       0060
```

```
06180           SW 0063         0066
06190           SW 0069         0071
06200           SW 0074
06090  PTB      B  PTC                          ALAST CARD TEST
07100           R                               READ DATA CARD
07101           MCW0021         0216            S/N TO PRINT
07102           W                               PRINT
07103           CS 0216
07104           MCW0032         0210            LOCATION TO PRNT
07105           MCW0045         0215            U/I TO PRINT
07106           LCACONT1        0230            $ SIGN TO PRINT
07107           MCE0042         0230            U/PRICE TO PRINT
07108           MCW0052         0237            STK/BAL TO PRINT
07110           A  ONE          NOINV           INVENTORY COUNT
07120           MCWZEROS        BODINV          CLEAR INV AREA
07130           A  0062         BODINV          BULK COUNT
07140           A  0065         BODINV          BACKUP COUNT
07150           A  0068         BODINV          RETAIL COUNT
07160           A  0072         BODINV          ADJUSTMENTS PLUS
07170           S  0070         BODINV          ADJUSTMENTS MINU
07180           MZ ONE          BODINV          CLEAR SIGN
07190           MCSBODINV       0249            COUNT TO PRINT
08010           MCWZEROS        WORKB           CLEAR STKBALAREA
08020           MZ ONE          0052            CLEAR SIGN
08030           A  0052         WORKB           STKBAL TO WKAREA
08040           MCWZEROS        WORKC           CLEAR INVCNTAREA
08050           A  ZEROS        BODINV          CLEAR BODINV
08060           MZ ONE          BODINV          CLEAR SIGN
08070           A  BODINV       WORKC           INV TO WRKAREA
08080           C  WORKC        WORKB           COMPARE BAL/INV
08090           B  PTI                         SINV=STK NO ADJ
08100           B  PTE                         UINVLESSBAL LOSS
08110           LCAZEROS        AREA            CLEAR PRODUCT AREA
08120           MCWZEROS        WORKF           CLEAR WORK F
09010           MCWWORKC        WORKF           INV TO WORKF
09020           S  WORKB        WORKF           GAIN IN WORKF
09030           MZ ONE          WORKF           CLEAR SIGN
09040           MCWZEROS        MUTPLR          MULTIPLICATION
09050           MCWZEROS        MUTCND          VALUE OF THE
09060           A  WORKF        MUTPLR          GAIN
09070           A  0042         MUTCND
09080           LCAMUTPLR       AREA   -020
09090  PTM1     B  PTM2         AREA   -020 0
09100           B  PTM2         AREA   -020 0
09110           A  MUTCND       AREA   -008
09120           S  ONE          AREA   -020
09130           B  PTM1
09140  PTM2     BWZPTM3         AREA   -020 1
09150           LCAAREA  -001   AREA
09160           B  PTM1
09170  PTM3     MZ ONE          AREA
09180           ZA AREA         GAIVAL          VALUE GAIN
09190           MCWAREA         WORKE           VALUE GAINTOWKE
09200           C  WORKE        HUNDRD          IS GAIN OVER$100
10010           B  PTH                         TBRANCH
10020           A  ZEROS        0052            ZEROS IN SBFIELD
```

```
10030          C  ZEROS        0052          IS GAIN COMPLETE
10040          B  PTJ                      SGAIN COMPLETE
10050          MCWZEROS       WORKD         CLEAR WORK AREA
10060          A  WORKB -001  WORKD         10PER STK BAL
10070          C  0338        FIVE          ROUND OFF
10080          B  PTF                      U338 LESS THAN 5
10090          A  ONE         WORKD         ROUND OFF
10100  PTF     C  WORKD       WORKF         COMPARE TO GAIN
10110          B  PTG                      UGAIN EXCEEDS10PE
10120          MCSWORKF       0260          GAIN TO PRINT
10130          A  ONE         NOGAIN        MINOR GAIN CNTR
10140          LCACONT1       0304          $ SIGN TO PRINT
10150          MCEGAIVAL      0304          GAIN VALUE PRINT
10160          A  GAIVAL      MGAVAL        MGAIN VALUE CNTR
10170          SW 0106        0123          SET WM,S PUNCH
10180          SW 0134        0144
10190          SW 0147        0168
10200          SW 0174
11010          MCW0021        0121          MOVE TO PUNCH
11020          MCW0032        0132
11030          MCW0043        0143
11040          MCW0045        0145
11050          MCWBODYH       0167
11051          MCWZEROS       WORKG
11052          MCWWORKF       WORKG
11060          MCSWORKG       0172
11070          MCS0080        0180
11080          P                           PUNCH ADJ CARD
11090          SS                          4PLACE INSTACKER4
11100          CS 0180                      CLEAR PUNCH AREA
11110          B  PTI
11120  PTG     A  ONE         NOREC         RECOUNT COUNTER
11130          MCWHEAD14      0266          RECOUNT TO PRNT
11140          MCS0080        0281          SER NO TO PRINT
11150          MCWBODYC       0288          CODE TO PRINT
11160          B  PTO
11170  PTH     A  ONE         NOREC         RECOUNT COUNTER
11180          MCWHEAD14      0266          RECOUNT TO PRNT
11190          MCS0080        0281          SER NO TO PRINT
11200          MCWBODYE       0288          CODE TO PRINT
12010          B  PTO
12020  PTJ     A  ONE         NOREC         RECOUNT COUNTER
12030          MCWHEAD14      0266          RECOUNT TO PRINT
12040          MCS0080        0281          SER NO TO PRINT
12050          MCWBODYB       0288          CODE TO PRINT
12060  PTO     SW 0106        0123          SET WM,S PUNCH
12070          SW 0134        0144
12080          SW 0147        0174
12090          MCW0021        0121          MOVE TO PUNCH
12100          MCW0032        0132
12110          MCW0043        0143
12120          MCW0045        0145
12130          MCW0052        0152
12140          MCS0080        0180
12150          P                           PUNCH RECOUNT CD
12160          CS 0180                      CLEAR PUNCH AREA
```

```
12161          A  GAIVAL      REGVAL       RECOUNT GAVALCNT
12162          LCACONT1      0304         $SIGN TO PRINT
12163          MCEGAIVAL     0304         GAIN TO PRINT
12170          B  PTI
12180  PTE     LCAZEROS      AREA         CLEAR PROD AREA
12190          MCWZEROS      WORKF        CLEAR WORKF
12200          MCWWORKB      WORKF        STKBAL TO WRKF
13010          S  WORKC      WORKF        LOSS IN WORKF
13020          MZ ONE        WORKF        CLEAR SIGN
13030          MCWZEROS      MUTPLR       MULTIPLICATION
13040          A  WORKF      MUTPLR       VALUE OF THE
13050          MCWZEROS      MUTCND       LOSS
13060          A  0042       MUTCND
13070          LCAMUTPLR     AREA  -020
13080  PTM4    B  PTM5       AREA  -020 0
13090          B  PTM5       AREA  -020 0
13100          A  MUTCND     AREA  -008
13110          S  ONE        AREA  -020
13120          B  PTM4
13130  PTM5    BWZPTM6       AREA  -020 1
13140          LCAAREA -001  AREA
13150          B  PTM4
13160  PTM6    MZ ONE        AREA
13170          ZA AREA       LOSVAL
13180          MCWAREA       WORKE        VALUELOSS TO WKE
13190          C  WORKE      HUNDRD       IS LOSS OVER$100
13200          B  PTK                    TLOSS EXCEEDS$100
14010          A  ZEROS      BODINV       ZEROS IN INV FLD
14020          C  ZEROS      BODINV       IS LOSS COMPLETE
14030          B  PTN                    SINV EQUALS ZERO
14040          MCWZEROS      WORKD        CLEAR WORK AREA
14050          A  WORKB -001 WORKD        10PERCNT STKBAL
14060          C  0338       FIVE         ROUND OFF
14070          B  PTL                    U338 LESS THAN 5
14080          A  ONE        WORKD        ROUND OFF
14090  PTL     C  WORKD      WORKF        COMPARE TO LOSS
14100          B  PTM                    ULOSS EXCEEDS10PE
14110          MCSWORKF      0268         LOSS TO PRINT
14120          A  ONE        NOLOSS       MINOR LOSS CNTR
14130          LCACONT1      0304         $ SING TO PRINT
14140          MCELOSVAL     0304         LOSS VALUE PRINT
14150          A  LOSVAL     MLOVAL       MLOSS VALUE CNTR
14160          SW 0106       0123         SET WM,S PUNCH
14170          SW 0134       0144
14180          SW 0147       0168
14190          SW 0174
14200          MCW0021       0121         MOVE TO PUNCH
15010          MCW0032       0132
15020          MCW0043       0143
15030          MCW0045       0145
15040          MCWBODYL      0167
15041          MCWZEROS      WORKG
15042          MCWWORKF      WORKG
15050          MCSWORKG      0172
15060          MCS0080       0180
15070          P                         PUNCH ADJ CARD
```

```
15080           SS                              4PLACE IN STKER4
15090           CS 0180                          CLEAR PUNCH
15100           B  PTI
15110  PTK      A  ONE          NOREC            RECOUNT COUNTER
15120           MCWHEAD14       0266             RECOUNT TO PRINT
15130           MCS0080         0281             SER NO TO PRINT
15140           MCWBODYF        0288             CODE TO PRINT
15150           B  PTP
15160  PTM      A  ONE          NOREC            RECOUNT COUNTER
15170           MCWHEAD14       0266             RECOUNT TO PRINT
15180           MCS0080         0281             SER NO TO PRINT
15190           MCWBODYD        0288             CODE TO PRINT
15200           B  PTP
16010  PTN      A  ONE          NOREC            RECOUNT COUNTER
16020           MCWHEAD14       0266             RECOUNT TOPRINT
16030           MCS0080         0281             SER NO TO PRINT
16040           MCWBODYA        0288             CODE TO PRINT
16050  PTP      SW 0106         0123             SET WMS PUNCH
16060           SW 0134         0144
16070           SW 0147         0174
16080           MCW0021         0121             MOVE TO PUNCH
16090           MCW0032         0132
16100           MCW0043         0143
16110           MCW0045         0145
16120           MCW0052         0152
16130           MCS0080         0180
16140           P                                PUNCH RECOUNT CD
16150           CS 0180
16151           A  LOSVAL       RELVAL           RECOUNTLOSVALCNT
16152           LCACONT1        0304             $SIGN TO PRINT
16153           MCELOSVAL       0304             LOSS VAL TO PRNT
16160  PTI      LCAZEROS        AREA             CLEAR PRODUCT
16170           MCWZEROS        MUTPLR           MULTIPLICATION
16180           A  BODINV       MUTPLR           INVENTORY
16190           MCWZEROS        MUTCND           VALUE
16200           A  0042         MUTCND
17010           LCAMUTPLR       AREA  -020
17020  PTM7     B  PTM8         AREA  -020 0
17030           B  PTM8         AREA  -020 0
17040           A  MUTCND       AREA  -008
17050           S  ONE          AREA  -020
17060           B  PTM7
17070  PTM8     BWZPTM9         AREA  -020 1
17080           LCAAREA  -001   AREA
17090           B  PTM7
17100  PTM9     MZ ONE          AREA
17110           A  AREA         INVVAL           INVVAL COUNT
17120           LCACONT1        0317             $SIGN TO PRINT
17130           MCWZEROS        WORKD            CLEAR WORKD
17140           MCWAREA         WORKD            INVVAL TO WORKD
17150           MCEWORKD        0317             INVVAL TO PRINT
17160           LCAZEROS        AREA
17170           MCWZEROS        MUTCND           MULTIPLICATION
17180           A  0042         MUTCND           STOCK BALANCE
17190           MCWZEROS        MUTPLR           VALUE
17200           A  0052         MUTPLR
```

```
18010          LCAMUTPLR      AREA  -020
18020  PTM10   B  PTM11       AREA  -020 0
18030          B  PTM11       AREA  -020 0
18040          A  MUTCND      AREA  -008
18050          S  ONE         AREA  -020
18060          B  PTM10
18070  PTM11   BWZPTM12       AREA  -020 1
18080          LCAAREA  -001  AREA
18090          B  PTM10
18100  PTM12   MZ ONE         AREA
18110          A  AREA        STKVAL       STKVAL COUNTER
18120          W                           PRINT A LINE
18130          CS 0317                     CLEAR PRINT AREA
18140          CS 0299
18150          CC                         KSKIP TWO SPACES
18160          B  PTR                     ,END OF PAGE TEST
18170          B  PTB                      READ A NEW CARD
18180  PTR     CC                         1SKIP TO NEW PAGE
18190          B  PTB                      READ NEW CARD
18200  PTC     CC                         LSKIP THREE SPACE
19010          MCWCODE1       0222         PRINT RECOUNT
19020          W                           CODES
19030          CS 0222
19040          CC                         K
19050          MCWCODEA       0236
19060          W
19070          CS 0236
19080          CC                         J
19090          MCWCODEB       0236
19100          W
19110          CS 0236
19120          CC                         J
19130          MCWCODEC       0251
19140          MCWCODE2       0264
19150          W
19160          CS 0264
19170          CC                         J
19180          MCWCODED       0251
19190          MCWCODE2       0264
19200          W
20010          CS 0264
20020          CC                         J
20030          MCWCODEE       0251
20040          MCWCODE3       0255
20050          W
20060          CS 0255
20070          CC                         J
20080          MCWCODEF       0251
20090          MCWCODE3.      0255
20100          W
20110          CS 0255
20120          CC                         L
20130          MCWENDA        0233          INVENTORY
20140          W                            RECAP
20150          CS 0233
20160          CC                         K
```

```
20170           MCWENDB         0239
20180           MCWNOINV        0270
20190           W
20200           CS 0270
21010           CC                              J
21020           MCWENDC         0244
21030           MCWNOGAIN       0270
21040           W
21050           CS 0270
21060           CC                              J
21070           MCWENDD         0245
21080           MCWNOLOSS       0270
21090           W
21100           CS 0270
21110           CC                              J
21120           MCWENDE         0239
21130           MCWNOREC        0270
21140           W
21150           CS 0270
21160           CC                              J
21170           MCWENDF         0250
21180           LCACONT1        0280
21190           MCEMGAVAL       0280
21200           W
22010           CS 0280
22020           CC                              J
22030           MCWENDG         0251
22040           LCACONT1        0280
22050           MCEMLOVAL       0280
22060           W
22070           CS 0280
22080           CC                              J
22090           MCWENDH         0241
22100           LCACONT1        0280
22110           MCEREGVAL       0280
22120           W
22130           CS 0280
22140           CC                              J
22150           MCWENDI         0242
22160           LCACONT1        0280
22170           MCERELVAL       0280
22180           W
22190           CS 0280
22200           CC                              J
23010           MCWENDJ         0250
23020           LCACONT1        0280
23030           MCEINVVAL       0280
23040           W
23050           CS 0280
23060           CC                              J
23070           MCWENDK         0251
23080           MCWENDL         0254
23090           LCACONT1        0280
23100           MCESTKVAL       0280
23110           W
23120           CS 0280
```

```
23130  PTZ    NOP0999          0999          LOCKED HALT
23140         H
23150         B  PTZ
23160         ENDSTART
```

FINAL INVENTORY SUMMARY

FINAL INVENTORY SUMMARY-----PROGRAM

```
01010         ORG0333
0102024HEAD1 DCW*       SOME NAVAL SUPPLY CENTER
0103024HEAD2 DCW*       FINAL INVENTORY  SUMMARY
0104012HEAD3 DCW*       STOCK NUMBER
0105015HEAD4 DCW*       LOCATION    U/I
01060 5HEAD5 DCW*       PRICE
0107018HEAD6 DCW*        STOCK    INVENTORY
0108017HEAD7 DCW*       BALANCE   BALANCE
0109011HEAD8 DCW*       ADJUSTMENTS
0110013HEAD9 DCW*       GAINS  LOSSES
01110 9HEAD10DCW*       GAIN/LOSS
01120 5HEAD11DCW*       VALUE
0113028HEAD12DCW*       INVESTIGATE          INVENTORY
01140 9HEAD13DCW*       (SER.NO.)
0115032ENDA  DCW*       INVENTORY RECOUNT RECAPITULATION
0116018ENDB  DCW*       NO.ITEMS RECOUNTED
0117025ENDC  DCW*       NO.FINAL ADJUSTMENT GAINS
0118026ENDD  DCW*       NO.FINAL ADJUSTMENT LOSSES
0119032ENDE  DCW*       NO.ITEMS REQUIRING INVESTIGATION
0120031ENDF  DCW*       VALUE OF FINAL ADJUSTMENT GAINS
0201032ENDG  DCW*       VALUE OF FINAL ADJUSTMENT LOSSES
0202028ENDH  DCW*       VALUE OF INVESTIGATION GAINS
0203029ENDI  DCW*       VALUE OF INVESTIGATION LOSSES
0204028ENDJ  DCW*       VALUE OF RECOUNTED ITEMS PER
0205013ENDK  DCW*       STOCK BALANCE
02060 9ENDL  DCW*       INVENTORY
0207016CARDA DCW*       FINAL ADJUSTMENT
02080 4CARDB DCW*       GAIN
02090 4CARDC DCW*       LOSS
02100 6WORKB DCW*       000000
02110 6WORKC DCW*       000000
02120 6WORKD DCW*       000000
0213012WORKE DCW*       000000000000
02140 6WORKF DCW*       000000
02141 5WORKG DCW*       00000
0215030ZEROS DCW*       000000000000000000000000     000
02160 9MUTPLRDCW*       000000000,
0217011MUTCNDDCW*       00000000000
02180 5NOREC DCW*       00000
02190 5NOFAG DCW*       00000
02200 5NOFAL DCW*       00000
03010 5NOIINVDCW*       00000
03020 8VFAG  DCW*       00000000
03030 8VFAL  DCW*       00000000
03040 8VRII  DCW*       00000000
03050 8VRISB DCW*       00000000
03060 8VIG   DCW*       00000000
03070 8VIL   DCW*       00000000
0308030AREA  DCW*       000000000000000000000000     000
03090 1ONE   DCW*       1
0310012CONT1 DCW*       $     ,  0.
0311012THOUS DCW*       000000100000
03120 6BODINVDCW*       000000
03130 8GAIVALDCW*       00000000
```

```
03140 8LOSVALDCW*       00000000
03150 1TEST   DCW*      0
04010  START  SW 0001
04020         MCWHEAD1        0272        PRINT HEADING
04030         W
04040         CS 0272
04050         MCWHEAD2        0272
04060         W
04070         CS 0272
04080         CC                          L
04090         R                            READ INV DATE
04100         MCW0080         0280
04110         W
04120         CS 0080
04130         CS 0280
04140         CC                          L
04141         SW 0001
04150         R                            READ RECOUNTDATE
04160         MCW0080         0280
04170         W
04180         CS 0080
04190         CS 0280
04200         CC                          L
05010         MCWHEAD3        0212        PRINT HEADING
05020         MCWHEAD5        0230
05030         MCWHEAD6        0252
05040         MCWHEAD8        0267
05050         MCWHEAD10       0285
05060         MCWHEAD12       0319
05070         W
05080         CS 0319
05090         CS 0299
05100         MCWHEAD4        0215
05110         MCWHEAD7        0251
05120         MCWHEAD9        0268
05130         MCWHEAD11       0283
05140         MCWHEAD13       0301
05150         MCWHEAD11       0317
05160         W
05170         CS 0317
05180         CS 0299
05190         CC                          L
05200  PTA    SW 0006         0023
06010         SW 0034         0044
06011         SW 0047         0060
06020         SW 0063         0066
06030         SW 0069         0071
06040         SW 0074
06050  PTB    B  PTC                      ALAST CARD TEST
06060         R                            READ DATA CARD
06070         MCW0021         0216        SN TO PRINT
06080         W
06090         CS 0216
06100         MCW0032         0210        LOCATION TO PRNT
06110         MCW0045         0215        U/I TO PRINT
06120         LCACONT1        0230
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06130            MCE0042        0230          U/PRICE TO PRINT
06140            MCS0052        0237          STK BAL TO PRINT
06150            A  ONE         NOREC         RECOUNT COUNTER
06160            MCWZEROS       BODINV
06170            A  0062        BODINV        BULK COUNT
06180            A  0065        BODINV        BACKUP COUNT
06190            A  0068        BODINV        RETAIL COUNT
06200            A  0072        BODINV        PLUS ADJUSTMENTS
07010            S  0070        BODINV        MINUS ADJUSTMENT
07020            MZ ONE         BODINV
07030            MCSBODINV      0249          COUNT TO PRINT
07040            MCWZEROS       WORKB         STOCK BALANCE AND
07050            MZ ONE         0052          INVENTORY
07060            A  0052        WORKB         BALANCE TO WORK
07070            MCWZEROS       WORKC
07080            A  ZEROS       BODINV
07090            MZ ONE         BODINV
07100            A  BODINV      WORKC          AREAS
07110            C  WORKC       WORKB          COMPARE INV/STK
07120            B  PTI                       SINV=STK NO ADJ
07130            B  PTE                       UINVLESSBAL LOSS
07140            LCAZEROS       AREA           GAIN CALCULATION
07150            MCWZEROS       WORKF          FOR THE VALUE OF
07160            MCWWORKC       WORKF          THE
07170            S  WORKB       WORKF
07180            MZ ONE         WORKF
07190            MCWZEROS       MUTPLR
07200            MCWZEROS       MUTCND
08010            A  WORKF       MUTPLR
08020            A  0042        MUTCND
08030            LCAMUTPLR      AREA  -020
08040  PTM1      B  PTM2        AREA  -020 0
08050            B  PTM2        AREA  -020 0
08060            A  MUTCND      AREA  -008
08070            S  ONE         AREA  -020
08080            B  PTM1
08090  PTM2      BWZPTM3        AREA  -020 1
08100            LCAAREA -001   AREA
08110            B  PTM1
08120  PTM3      MZ ONE         AREA
08130            ZA AREA        GAIVAL         GAIN
08140            MCWAREA        WORKE
08150            MCSWORKF       0260
08160            A  ONE         NOFAG          FINAL ADJ COUNT
08170            A  GAIVAL      VFAG           VALUE GAIN CNTR
08180            LCACONT1       0285
08190            MCEGAIVAL      0285
08200            SW 0106        0123           PUNCH ADJ CARD
09010            SW 0134        0144
09020            SW 0147        0164
09030            SW 0168        0174
09040            MCW0021        0121
09050            MCW0032        0132
09060            MCW0043        0143
09070            MCW0045        0145
09080            MCWCARDA       0162
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09090          MCWCARDB        0167
09091          MCWZEROS        WORKG
09092          MCWWORKF        WORKG
09100          MCSWORKG        0172
09110          MCS0080         0180
09120          P
09130          CS 0180
09140          C  WORKE        THOUS        IS GAIN OVER
09150          B  PTH                      T$1000
09160          B  PTI
09170  PTH     A  ONE          NOIINV       NO INVEST CNTR
09180          A  GAIVAL       VIG          VALUE OF GAINCTR
09190          MCS0080         0299
09200          B  PTI
10010  PTE     LCAZEROS        AREA         LOSS CALCULATION
10020          MCWZEROS        WORKF        FOR THE VALUE OF
10030          MCWWORKB        WORKF        THE
10040          S  WORKC        WORKF
10050          MZ ONE          WORKF
10060          MCWZEROS        MUTPLR
10070          MCWZEROS        MUTCND
10080          A  WORKF        MUTPLR
10090          A  0042         MUTCND
10100          LCAMUTPLR       AREA  -020
10110  PTM4    B  PTM5         AREA  -020 0
10120          B  PTM5         AREA  -020 0
10130          A  MUTCND       AREA  -008
10140          S  ONE          AREA  -020
10150          B  PTM4
10160  PTM5    BWZPTM6         AREA  -020 1
10170          LCAAREA  -001   AREA
10180          B  PTM4
10190  PTM6    MZ ONE          AREA
10200          ZA AREA         LOSVAL       LOSS
11010          MCWAREA         WORKE
11020          MCSWORKF        0268
11030          A  ONE          NOFAL        FINAL ADJ COUNT
11040          A  LOSVAL       VFAL         VALUE LOSS CNTR
11050          LCACONT1        0285
11060          MCELOSVAL       0285
11070          SW 0106         0123         PUNCH ADJ CARD
11080          SW 0134         0144
11090          SW 0147         0164
11100          SW 0168         0174
11110          MCW0021         0121
11120          MCW0032         0132
11130          MCW0043         0143
11140          MCW0045         0145
11150          MCWCARDA        0162
11160          MCWCARDC        0167
11161          MCWZEROS        WORKG
11162          MCWWORKF        WORKG
11170          MCSWORKG        0172
11180          MCS0080         0180
11190          P
11200          CS 0180
```

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12010          C  WORKE       THOUS        IS LOSS OVER
12020          B  PTK                     T1000
12030          B  PTI
12040  PTK     A  ONE         NOIINV       NO INVEST CNTR
12050          A  LOSVAL      VIL          VALUE OF LOSSCTR
12060          MCS0080        0299
12070  PTI     LCAZEROS       AREA         CALCULATION OF
12071          MCWZEROS       TEST
12080          MCWZEROS       MUTPLR       THE VALUE OF
12090          A  BODINV      MUTPLR       INVENTORY COUNT
12100          MCWZEROS       MUTCND       AND THE STOCK
12110  PTL     A  0042        MUTCND       BALANCE
12120          LCAMUTPLR      AREA  -020
12130  PTM7    B  PTM8        AREA  -020 0
12140          B  PTM8        AREA  -020 0
12150          A  MUTCND      AREA  -008
12160          S  ONE         AREA  -020
12170          B  PTM7
12180  PTM8    BWZPTM9        AREA  -020 1
12190          LCAAREA  -001  AREA
12200          B  PTM7
13010  PTM9    MZ ONE         AREA
13020          B  PTR         TEST       1
13030          A  ONE         TEST
13040          A  AREA        VRII         VALUE INV CNTR
13050          LCACONT1       0319
13060          MCWZEROS       WORKD
13070          MCWAREA        WORKD
13080          MCEWORKD       0319
13090          LCAZEROS       AREA
13100          MCWZEROS       MUTPLR
13110          MCWZEROS       MUTCND
13120          A  0052        MUTPLR
13130          B  PTL
13140  PTR     A  AREA        VRISB        VALUE SB CNTR
13150          W
13160          CS 0319
13170          CS 0299
13180          CC                          K
13190          B  PTS                      ,NEW PAGE CHECK
13200          B  PTB                       READ ANOTHER CAR
14010  PTS     CC                          1SKIP TO NEW PAGE
14020          B  PTB                       READ ANOTHER CD
14030  PTC     CC                          1PRINT RECOUNT
14040          MCWENDA        0252         RECAP INFORMATION
14050          W
14060          CS 0252
14070          CC                          K
14080          MCWENDB        0238
14090          MCSNOREC       0270
14100          W
14110          CS 0270
14120          CC                          J
14130          MCWENDC        0245
14140          MCSNOFAG       0270
14150          W
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14160           CS 0270
14170           CC                              J
14180           MCWENDD         0246
14190           MCSNOFAL        0270
14200           W
15010           CS 0270
15020           CC                              J
15030           MCWENDE         0252
15040           MCSNOIINV       0270
15050           W
15060           CS 0270
15070           CC                              J
15080           MCWENDF         0251
15090           LCACONT1        0280
15100           MCEVFAG         0280
15110           W
15120           CS 0280
15130           CC                              J
15140           MCWENDG         0252
15150           LCACONT1        0280
15160           MCEVFAL         0280
15170           W
15180           CS 0280
15190           CC                              J
15200           MCWENDH         0248
16010           LCACONT1        0280
16020           MCEVIG          0280
16030           W
16040           CS 0280
16050           CC                              J
16060           MCWENDI         0249
16070           LCACONT1        0280
16080           MCEVIL          0280
16090           W
16100           CS 0280
16110           CC                              J
16120           MCWENDJ         0248
16130           MCWENDL         0258
16140           LCACONT1        0280
16150           MCEVRII         0280
16160           W
16170           CS 0280
16180           CC                              J
16190           MCWENDJ         0248
16200           MCWENDK         0262
17010           LCACONT1        0280
17020           MCEVRISB        0280
17030           W
17040           CS 0280
17050  PTZ      NOP0999         0999        LOCKED HALT
17060           H
17070           B  PTZ
17080           ENDSTART
```

APPENDIX C

OBJECT PROGRAM LISTINGS

INITIAL INVENTORY SUMMARY

FINAL INVENTORY SUMMARY

INITIAL INVENTORY SUMMARY

INITIAL INVENTORY SUMMARY

STANDARD OBJECT PROGRAM LISTING

INITIAL INVENTORY SUMMARY-----OBJECT DECK

```
,008015,022026,030037N000,044,049053,069072N00001026
L068116,105106,110117B101/I9I=071029C029074B026/B001/0991,001/001117I00099
,008015,022029,056063/056029                                    ,0240671056
            CTL66                                               N0010561056          R
01010       ORG0333                                             N0010561056          2
01020 6WORKB DCW*      000000                                   L0293381056          F
0103030ZEROS DCW*      000000000000000000000 0     000          L0533681056          F
01040 9MUTPLRDCW*      000000000                                L0323771056          F
0105024HEAD1 DCW*      SOME NAVAL SUPPLY CENTER                 L0474011056          F
0106025HEAD2 DCW*      INITIAL INVENTORY SUMMARY                L0484261056          F
0107012HEAD3 DCW*      STOCK NUMBER                             L0354381056          F
0108015HEAD4 DCW*      LOCATION    U/I                          L0384531056          F
01090 5HEAD5 DCW*      PRICE                                    L0284581056          F
0110018HEAD6 DCW*      STOCK     INVENTORY                      L0414761056          F
0111016HEAD7 DCW*      BALANCE  BALANCE                         L0394921056          F
0112017HEAD8 DCW*      MINOR ADJUSTMENTS                        L0405091056          F
0113015HEAD9 DCW*        GAINS  LOSSES                          L0385241056          F
01140 8HEAD10DCW*      RECOUNTS                                 L0315321056          F
01150 8HEAD11DCW*      (SER.NO)                                 L0315401056          F
0116021HEAD12DCW*      GAIN/LOSS    INVENTORY                   L0445611056          F
0117019HEAD13DCW*        VALUE        VALUE                     L0425801056          F
01180 7HEAD14DCW*      RECOUNT                                  L0305871056          F
01190 5HEAD15DCW*       CODE                                    L0285921056          F
01200 1BODYA DCW*      A                                        L0245931056          F
02010 1BODYB DCW*      B                                        L0245941056          F
02020 1BODYC DCW*      C                                        L0245951056          F
02030 1BODYD DCW*      D                                        L0245961056          F
02040 1BODYE DCW*      E                                        L0245971056          F
02050 1BODYF DCW*      F                                        L0245981056          F
0206013CODE1 DCW*      RECOUNT CODES                            L0366111056          F
0207017CODEA DCW*      A.  COMPLETE LOSS                        L0406281056          F
0208017CODEB DCW*      B.  COMPLETE GAIN                        L0406451056          F
0209032CODEC DCW*      C.  GAIN EXCEEDS TEN PERCENT OF          L0556771056          F
0210013CODE2 DCW*      STOCK BALANCE                            L0366901056          F
0211032CODED DCW*      D.  LOSS EXCEEDS TEN PERCENT OF          L0557221056          F
0212032CODEE DCW*      E.  GAIN EXCEEDS ONE HUNDRED DOLL        L0557541056          F
02130 4CODE3 DCW*      LARS                                     L0277581056          F
0214032CODEF DCW*      F.  LOSS EXCEEDS ONE HUNDRED DOLL        L0557901056          F
02150 7BODYG DCW*      RECOUNT                                  L0307971056          F
0216024ENDA  DCW*      INVENTORY RECAPITULATION                 L0478211056          F
0217020ENDB  DCW*      NO.ITEMS INVENTORIED                     L0438411056          F
0218025ENDC  DCW*      NO.MINOR ADJUSTMENT GAINS                L0488661056          F
0219026ENDD  DCW*      NO.MINOR ADJUSTMENT LOSSES               L0498921056          F
0220020ENDE  DCW*      NO.ITEMS FOR RECOUNT                     L0439121056          F
0301031ENDF  DCW*      VALUE OF MINOR ADJUSTMENT GAINS          L0549431056          F
0302032ENDG  DCW*      VALUE OF MINOR ADJUSTMENT LOSSES         L0559751056          F
0303022ENDH  DCW*      VALUE OF RECOUNT GAINS                   L0459971056          F
0304023ENDI  DCW*      VALUE OF RECOUNT LOSSES                  L0462201056          F
0305031ENDJ  DCW*      TOTAL VALUE STOCK PER INVENTORY          L0542511056          F
0306032ENDK  DCW*      TOTAL VALUE STOCK PER STOCK BALA         L0552831056          F
03070 3ENDL  DCW*      NCE                                      L0262861056          F
03080 5NOINV DCW*      00000                                    L0282911056          F
03090 5NOGAINDCW*      00000                                    L0282961056          F
03100 5NOLOSSDCW*      00000                                    L0281011056          F
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03110 5NOREC DCW*      00000                                  L028/061056          F
03120 8GAIVALDCW*      00000000                               L031/141056          F
03130 8LOSVALDCW*      00000000                               L031/221056          F
03140 8RELVALDCW*      00000000                               L031/301056          F
03150 8REGVALDCW*      00000000                               L031/381056          F
03160 8INVVALDCW*      00000000                               L031/461056          F
03170 8STKVALDCW*      00000000                               L031/541056          F
03180 6BODINVDCW*      000000                                 L029/601056          F
03190 6WORKC DCW*      000000                                 L029/661056          F
03200 6WORKD DCW*      000000                                 L029/721056          F
03210 6MGAVALDCW*      000000                                 L029/781056          F
03220 6MLOVALDCW*      000000                                 L029/841056          F
0401012WORKE DCW*      000000000000                           L035/961056          F
04020 6WORKF DCW*      000000                                 L029S021056          F
04021 5WORKG DCW*      00000                                  L028S071056          F
0403030AREA  DCW*      000000000000000000000000    000        L053S371056          F
04040 1ONE   DCW*      1                                      L024S381056          F
0405012HUNDRDDCW*      000000010000                           L035S501056          F
04060 1FIVE  DCW*      5                                      L024S511056          F
0407012CONT1 DCW*      $     ,  0.                           L035S631056          F
0408011MUTCNDDCW*      00000000000                            L034S741056          F
0409021BODYL DCW*      MINOR ADJUSTMENT LOSS                  L044S951056          F
0410021BODYH DCW*      MINOR ADJUSTMENT GAIN                  L044T161056          F
0501004START SW 0001                        W/M IN READ AREA  L070T201056,001
0502007      MCWHEAD1      0272             PRINT HEADING     L073T271056M401272
0503001      W                                                L067T2810562
0504004      CS 0272                                          L070T321056/272
0505007      MCWHEAD2      0273                               L073T391056M426273
0506001      W                                                L067T4010562
0507004      CS 0273                                          L070T441056/273
0508002      CC                            LSKIP THREE        L068T461056FL
0509001      R                              READ INV DATE     L067T4710561
0510007      MCW0080       0280             MOVE TO PRINT     L073T541056M080280
0511001      W                              PRINT INV DATE    L067T5510562
0512004      CS 0080                                          L070T591056/080
0513004      CS 0280                                          L070T631056/280
0514002      CC                            LSKIP THREE        L068T651056FL
0515007      MCWHEAD3      0212             PRINT HEADING     L073T721056M438212
0516007      MCWHEAD5      0230                               L073T791056M458230
0517007      MCWHEAD6      0252                               L073T861056M476252
0518007      MCWHEAD8      0271                               L073T931056M509271
0519007      MCWHEAD10     0281                               L073U001056M532281
0520007      MCWHEAD14     0290                               L073U071056M587290
0601007      MCWHEAD12     0319                               L073U141056M561319
0602001      W                                                L067U1510562
0603004      CS 0319                                          L070U191056/319
0604004      CS 0299                                          L070U231056/299
0605007      MCWHEAD4      0215                               L073U301056M453215
0606007      MCWHEAD7      0250                               L073U371056M492250
0607007      MCWHEAD9      0269                               L073U441056M524269
0608007      MCWHEAD11     0281                               L073U511056M540281
0609007      MCWHEAD15     0288                               L073U581056M592288
0610007      MCWHEAD13     0317                               L073U651056M580317
0611001      W                                                L067U6610562
0612004      CS 0317                                          L070U701056/317
0613004      CS 0299                                          L070U741056/299
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0614002      CC                          LSKIP THREE       L068U761056FL
0615007PTA   SW 0006       0023                           L073U831056,006023
0616007      SW 0034       0044          WMS IN READ AREAL073U901056,034044
0617007      SW 0047       0060                           L073U971056,047060
0618007      SW 0063       0066                           L073V041056,063066
0619007      SW 0069       0071                           L073V111056,069071
0620004      SW 0074                                      L070V151056,074
0709005PTB   B  PTC                      ALAST CARD TEST   L071V201056B044A
0710001      R                            READ DATA CARD   L067V2110561
0710107      MCW0021       0216           S/N TO PRINT     L073V281056M021216
0710201      W                            PRINT            L067V2910562
0710304      CS 0216                                       L070V331056/216
0710407      MCW0032       0210           LOCATION TO PRNTL073V401056M032210
0710507      MCW0045       0215           U/I TO PRINT     L073V471056M045215
0710607      LCACONT1      0230           $ SIGN TO PRINT  L073V541056LS63230
0710707      MCE0042       0230           U/PRICE TO PRINTL073V611056E042230
0710807      MCW0052       0237           STK/BAL TO PRINTL073V681056M052237
0711007      A  ONE        NOINV          INVENTORY COUNT  L073V751056AS38Z91
0712007      MCWZEROS      BODINV         CLEAR INV AREA   L073V821056M368/60
0713007      A  0062       BODINV         BULK COUNT       L073V891056A062/60
0714007      A  0065       BODINV         BACKUP COUNT     L073V961056A065/60
0715007      A  0068       BODINV         RETAIL COUNT     L073W031056A068/60
0716007      A  0072       BODINV         ADJUSTMENTS PLUSL073W101056A072/60
0717007      S  0070       BODINV         ADJUSTMENTS MINUL073W171056S070/60
0718007      MZ ONE        BODINV         CLEAR SIGN       L073W241056YS38/60
0719007      MCSBODINV     0249           COUNT TO PRINT   L073W311056Z/60249
0801007      MCWZEROS      WORKB          CLEAR STKBALAREAL073W381056M368338
0802007      MZ ONE        0052           CLEAR SIGN       L073W451056YS38052
0803007      A  0052       WORKB          STKBAL TO WKAREAL073W521056A052338
0804007      MCWZEROS      WORKC          CLEAR INVCNTAREAL073W591056M368/66
0805007      A  ZEROS      BODINV         CLEAR BODINV     L073W661056A368/60
0806007      MZ ONE        BODINV         CLEAR SIGN       L073W731056YS38/60
0807007      A  BODINV     WORKC          INV TO WRKAREA   L073W801056A/60/66
0808007      C  WORKC      WORKB          COMPARE BAL/INV  L073W871056C/66338
0809005      B  PTI                      SINV=STK NO ADJ   L071W921056BP72S
0810005      B  PTE                      UINVLESSBAL LOSS  L071W971056BK37U
0811007      LCAZEROS      AREA           CLEAR PRODUCT ARL073X041056L368S37
0812007      MCWZEROS      WORKF          CLEAR WORK F     L073X111056M368S02
0901007      MCWWORKC      WORKF          INV TO WORKF     L073X181056M/66S02
0902007      S  WORKB      WORKF          GAIN IN WORKF    L073X251056S338S02
0903007      MZ ONE        WORKF          CLEAR SIGN       L073X321056YS38S02
0904007      MCWZEROS      MUTPLR         MULTIPLICATION   L073X391056M368377
0905007      MCWZEROS      MUTCND         VALUE OF THE     L073X461056M368S74
0906007      A  WORKF      MUTPLR         GAIN             L073X531056AS02377
0907007      A  0042       MUTCND                          L073X601056A042S74
0908007      LCAMUTPLR     AREA  -020                      L073X671056L377S17
0909008PTM1  B  PTM2       AREA  -020 0                    L074X751056BY02S170
0910008      B  PTM2       AREA  -020 0                    L074X831056BY02S170
0911007      A  MUTCND     AREA  -008                      L073X901056AS74S29
0912007      S  ONE        AREA  -020                      L073X971056SS38S17
0913004      B  PTM1                                       L070Y011056BX68
0914008PTM2  BWZPTM3       AREA  -020 1                    L074Y091056VY21S171
0915007      LCAAREA  -001 AREA                           L073Y161056LS36S37
0916004      B  PTM1                                       L070Y201056BX63
0917007PTM3  MZ ONE        AREA                           L073Y271056YS38S37
0918007      ZA AREA       GAIVAL          VALUE GAIN     L073Y341056OS37/14
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0919007       MCWAREA          WORKE        VALUE GAINTOWKE L073Y411056MS37/96
0920007       C  WORKE         HUNDRD       IS GAIN OVER$100L073Y481056C/96S50
1001005       B  PTH                       TBRANCH          L071Y531056B084T
1002007       A  ZEROS         0052         ZEROS IN SBFIELDL073Y601056A368052
1003007       C  ZEROS         0052         IS GAIN COMPLETEL073Y671056C368052
1004005       B  PTJ                       SGAIN COMPLETE   L071Y721056BJ16S
1005007       MCWZEROS         WORKD        CLEAR WORK AREA L073Y791056M368/72
1006007       A  WORKB -001    WORKD        10PER STK BAL    L073Y861056A337/72
1007007       C  0338          FIVE         ROUND OFF        L073Y931056C338S51
1008005       B  PTF                       U338 LESS THAN 5 L071Y981056BZ06U
1009007       A  ONE           WORKD        ROUND OFF        L073Z051056AS38/72
1010007PTF    C  WORKD         WORKF        COMPARE TO GAIN L073Z121056C/72S02
1011005       B  PTG                       UGAIN EXCEEDS10PEL071Z171056B052U
1012007       MCSWORKF         0260         GAIN TO PRINT    L073Z241056ZS02260
1013007       A  ONE           NOGAIN       MINOR GAIN CNTR L073Z311056AS38Z96
1014007       LCACONT1         0304         $ SIGN TO PRINT L073Z381056LS63304
1015007       MCEGAIVAL        0304         GAIN VALUE PRINTL073Z451056E/14304
1016007       A  GAIVAL        MGAVAL       MGAIN VALUE CNTRL073Z521056A/14/78
1017007       SW 0106          0123         SET WM,S PUNCH   L073Z591056,106123
1018007       SW 0134          0144                          L073Z661056,134144
1019007       SW 0147          0168                          L073Z731056,147168
1020004       SW 0174                                        L070Z771056,174
1101007       MCW0021          0121         MOVE TO PUNCH    L073Z841056M021121
1102007       MCW0032          0132                          L073Z911056M032132
1103007       MCW0043          0143                          L073Z981056M043143
1104007       MCW0045          0145                          L073O051056M045145
1105007       MCWBODYH         0167                          L073O121056MT16167
1105107       MCWZEROS         WORKG                         L073O191056M368S07
1105207       MCWWORKF         WORKG                         L073O261056MS02S07
1106007       MCSWORKG         0172                          L073O331056ZS07172
1107007       MCS0080          0180                          L073O401056Z080180
1108001       P                            PUNCH ADJ CARD   L06704110564
1109002       SS                           4PLACE INSTACKER4L0680431056K4
1110004       CS 0180                      CLEAR PUNCH AREAL0700471056/180
1111004       B  PTI                                        L0700511056BP72
1112007PTG    A  ONE           NOREC        RECOUNT COUNTER L073O581056AS38/06
1113007       MCWHEAD14        0266         RECOUNT TO PRNT L073O651056M587266
1114007       MCS0080          0281         SER NO TO PRINT L073O721056Z080281
1115007       MCWBODYC         0288         CODE TO PRINT    L073O791056M595288
1116004       B  PTO                                        L0700831056BJ44
1117007PTH    A  ONE           NOREC        RECOUNT COUNTER L073O901056AS38/06
1118007       MCWHEAD14        0266         RECOUNT TO PRNT L073O971056M587265
1119007       MCS0080          0281         SER NO TO PRINT L073J041056Z080281
1120007       MCWBODYE         0288         CODE TO PRINT    L073J111056M597288
1201004       B  PTO                                        L070J151056BJ44
1202007PTJ    A  ONE           NOREC        RECOUNT COUNTER L073J221056AS38/06
1203007       MCWHEAD14        0266         RECOUNT TO PRINTL073J291056M587266
1204007       MCS0080          0281         SER NO TO PRINT L073J361056Z080281
1205007       MCWBODYB         0288         CODE TO PRINT    L073J431056M594288
1206007PTO    SW 0106          0123         SET WM,S PUNCH   L073J501056,106123
1207007       SW 0134          0144                          L073J571056,134144
1208007       SW 0147          0174                          L073J641056,147174
1209007       MCW0021          0121         MOVE TO PUNCH    L073J711056M021121
1210007       MCW0032          0132                          L073J781056M032132
1211007       MCW0043          0143                          L073J851056M043143
1212007       MCW0045          0145                          L073J921056M045145
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1213007        MCW0052          0152                                  L073J991056M052152
1214007        MCS0080          0180                                  L073K061056Z080180
1215001        P                                        PUNCH RECOUNT CDL067K071056/4
1216004        CS 0180                                  CLEAR PUNCH AREAL070K111056/180
1216107        A  GAIVAL        REGVAL                  RECOUNT GAVALCNTL073K181056A/14/38
1216207        LCACONT1         0304                    $SIGN TO PRINT  L073K251056LS63304
1216307        MCEGAIVAL        0304                    GAIN TO PRINT   L073K321056E/14304
1217004        B  PTI                                                   L070K361056BP72
1218007PTE     LCAZEROS         AREA                    CLEAR PROD AREA L073K431056L368S37
1219007        MCWZEROS         WORKF                   CLEAR WORKF     L073K501056M368S02
1220007        MCWWORKB         WORKF                   STKBAL TO WRKF  L073K571056M338S02
1301007        S  WORKC         WORKF                   LOSS IN WORKF   L073K641056S/66S02
1302007        MZ ONE           WORKF                   CLEAR SIGN      L073K711056YS38S02
1303007        MCWZEROS         MUTPLR                  MULTIPLICATION  L073K781056M368377
1304007        A  WORKF         MUTPLR                  VALUE OF THE    L073K851056AS02377
1305007        MCWZEROS         MUTCND                  LOSS            L073K921056M368S74
1306007        A  0042          MUTCND                                  L073K991056A042S74
1307007        LCAMUTPLR        AREA   -020                             L073L061056L377S17
1308008PTM4    B  PTM5          AREA   -020 0                           L074L141056BL41S170
1309008        B  PTM5          AREA   -020 0                           L074L221056BL41S170
1310007        A  MUTCND        AREA   -008                             L073L291056AS74S29
1311007        S  ONE           AREA   -020                             L073L361056SS38S17
1312004        B  PTM4                                                  L070L401056BL07
1313008PTM5    BWZPTM6          AREA   -020 1                           L074L481056VL60S171
1314007        LCAAREA  -001    AREA                                    L073L551056LS36S37
1315004        B  PTM4                                                  L070L591056BL07
1316007PTM6    MZ ONE           AREA                                    L073L661056YS38S37
1317007        ZA AREA          LOSVAL                                  L073L731056OS37/22
1318007        MCWAREA          WORKE                   VALUELOSS TO WKEL073L801056MS37/96
1319007        C  WORKE         HUNDRD                  IS LOSS OVER$100L073L871056C/96S50
1320005        B  PTK                                  TLOSS EXCEEDS$100L071L921056BN91T
1401007        A  ZEROS         BODINV                  ZEROS IN INV FLDL073L991056A368/60
1402007        C  ZEROS         BODINV                  IS LOSS COMPLETEL073M061056C368/60
1403005        B  PTN                                  SINV EQUALS ZERO L071M111056BO55S
1404007        MCWZEROS         WORKD                   CLEAR WORK AREA L073M181056M368/72
1405007        A  WORKB -001    WORKD                   10PERCNT STKBAL L073M251056A337/72
1406007        C  0338          FIVE                    ROUND OFF       L073M321056C338S51
1407005        B  PTL                                  U338 LESS THAN 5 L071M371056BM45U
1408007        A  ONE           WORKD                   ROUND OFF       L073M441056AS38/72
1409007PTL     C  WORKD         WORKF                   COMPARE TO LOSS L073M511056C/72S02
1410005        B  PTM                                  ULOSS EXCEEDS10PEL071M561056BO23U
1411007        MCSWORKF         0268                    LOSS TO PRINT   L073M631056ZS02268
1412007        A  ONE           NOLOSS                  MINOR LOSS CNTR L073M701056AS38/01
1413007        LCACONT1         0304                    $ SING TO PRINT L073M771056LS63304
1414007        MCELOSVAL        0304                    LOSS VALUE PRINTL073M841056E/22304
1415007        A  LOSVAL        MLOVAL                  MLOSS VALUE CNTRL073M911056A/22/84
1416007        SW 0106          0123                    SET WM,S PUNCH  L073M981056,106123
1417007        SW 0134          0144                                    L073N051056,134144
1418007        SW 0147          0168                                    L073N121056,147168
1419004        SW 0174                                                  L070N161056,174
1420007        MCW0021          0121                    MOVE TO PUNCH   L073N231056M021121
1501007        MCW0032          0132                                    L073N301056M032132
1502007        MCW0043          0143                                    L073N371056M043143
1503007        MCW0045          0145                                    L073N441056M045145
1504007        MCWBODYL         0167                                    L073N511056MS95167
1504107        MCWZEROS         WORKG                                   L073N581056M368S07
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1504207       MCWWORKF      WORKG·                                L073N651056MS02S07
1505007       MCSWORKG      0172                                  L073N721056ZS07172
1506007       MCS0080       0180                                  L073N791056Z080180
1507001       P                                 PUNCH ADJ CARD    L067N8010564
1508002       SS                               4PLACE IN STKER4   L068N821056K4
1509004       CS 0180                           CLEAR PUNCH       L070N861056/180
1510004       B  PTI                                              L070N901056BP72
1511007PTK    A  ONE        NOREC               RECOUNT COUNTER   L073N971056AS38/06
1512007       MCWHEAD14     0266                RECOUNT TO PRINTL073O041056M587266
1513007       MCS0080       0281                SER NO TO PRINT   L073O111056Z080281
1514007       MCWBODYF      0288                CODE TO PRINT     L073O181056M598288
1515004       B  PTP                                              L070O221056BO83
1516007PTM    A  ONE        NOREC               RECOUNT COUNTER   L073O291056AS38/06
1517007       MCWHEAD14     0266                RECOUNT TO PRINTL073O361056M587266
1518007       MCS0080       0281                SER NO TO PRINT   L073O431056Z080281
1519007       MCWBODYD      0288                CODE TO PRINT     L073O501056M596288
1520004       B  PTP                                              L070O541056BO83
1601007PTN    A  ONE        NOREC               RECOUNT COUNTER   L073O611056AS38/06
1602007       MCWHEAD14     0266                RECOUNT TOPRINT   L073O681056M587266
1603007       MCS0080       0281                SER NO TO PRINT   L073O751056Z080281
1604007       MCWBODYA      0288                CODE TO PRINT     L073O821056M593288
1605007PTP    SW 0106       0123                SET WMS PUNCH     L073O891056,106123
1606007       SW 0134       0144                                  L073O961056,134144
1607007       SW 0147       0174                                  L073P031056,147174
1608007       MCW0021       0121                MOVE TO PUNCH     L073P101056M021121
1609007       MCW0032       0132                                  L073P171056M032132
1610007       MCW0043       0143                                  L073P241056M043143
1611007       MCW0045       0145                                  L073P311056M045145
1612007       MCW0052       0152                                  L073P381056M052152
1613007       MCS0080       0180                                  L073P451056Z080180
1614001       P                                 PUNCH RECOUNT CDL067P4610564
1615004       CS 0180                                             L070P501056/180
1615107       A  LOSVAL     RELVAL              RECOUNTLOSVALCNTL073P571056A/22/30
1615207       LCACONT1      0304                $SIGN TO PRINT    L073P641056LS63304
1615307       MCELOSVAL     0304                LOSS VAL TO PRNTL073P711056E/22304
1616007PTI    LCAZEROS      AREA                CLEAR PRODUCT     L073P781056L368S37
1617007       MCWZEROS      MUTPLR              MULTIPLICATION    L073P851056M368377
1618007       A  BODINV     MUTPLR              INVENTORY         L073P921056A/60377
1619007       MCWZEROS      MUTCND·             VALUE             L073P991056M368S74
1620007       A  0042       MUTCND                                L073Q061056A042S74
1701007       LCAMUTPLR     AREA  -020                            L073Q131056L377S17
1702008PTM7   B  PTM8       AREA  -020 0                          L074Q211056BQ48S170
1703008       B  PTM8       AREA  -020 0                          L074Q291056BQ48S170
1704007       A  MUTCND     AREA  -008                            L073Q361056AS74S29
1705007       S  ONE        AREA  -020                            L073Q431056SS38S17
1706004       B  PTM7                                             L070Q471056BQ14
1707008PTM8   BWZPTM9       AREA  -020 1                          L074Q551056VQ67S171
1708007       LCAAREA -001  AREA                                  L073Q621056LS36S37
1709004       B  PTM7                                             L070Q661056BQ14
1710007PTM9   MZ ONE        AREA                                  L073Q731056YS38S37
1711007       A  AREA       INVVAL               INVVAL COUNT     L073Q801056AS37/46
1712007       LCACONT1      0317                $SIGN TO PRINT    L073Q871056LS63317
1713007       MCWZEROS      WORKD               CLEAR WORKD       L073Q941056M368/72
1714007       MCWAREA       WORKD               INVVAL TO WORKD   L073R011056MS37/72
1715007       MCEWORKD      0317                INVVAL TO PRINT   L073R081056E/72317
1716007       LCAZEROS      AREA                                  L073R151056L368S37
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1717007       MCWZEROS        MUTCND       MULTIPLICATION  L073R221056M368S74
1718007       A  0042         MUTCND       STOCK BALANCE   L073R291056A042S74
1719007       MCWZEROS        MUTPLR       VALUE           L073R361056M368377
1720007       A  0052         MUTPLR                       L073R431056A052377
1801007       LCAMUTPLR       AREA  -020                   L073R501056L377S17
1802008PTM10  B  PTM11        AREA  -020 0                 L074R581056BR85S170
1803008       B  PTM11        AREA  -020 0                 L074R661056BR85S170
1804007       A  MUTCND       AREA  -008                   L073R731056AS74S29
1805007       S  ONE          AREA  -020                   L073R801056SS38S17
1806004       B  PTM10                                     L070R841056BR51
1807008PTM11  BWZPTM12        AREA  -020 1                 L074R921056V004S171
1808007       LCAAREA  -001   AREA                         L073R991056LS36S37
1809004       B  PTM10                                     L070O031056BR51
1810007PTM12  MZ ONE          AREA                         L073O101056YS38S37
1811007       A  AREA         STKVAL       STKVAL COUNTER  L073O171056AS37/54
1812001       W                            PRINT A LINE    L06701810562
1813004       CS 0317                      CLEAR PRINT AREAL0700221056/317
1814004       CS 0299                                      L0700261056/299
1815002       CC                           KSKIP TWO SPACES L0680281056FK
1816005       B  PTR                       ,END OF PAGE TESTL071033105 6B038,
1817004       B  PTB                        READ A NEW CARD L0700371056BV16
1818002PTR    CC                           1SKIP TO NEW PAGEL0680391056F1'
1819004       B  PTB                        READ NEW CARD   L0700431056BV16
1820002PTC    CC                           LSKIP THREE SPACEL0680451056FL
1901007       MCWCODE1        0222          PRINT RECOUNT   L073052105 6M611222
1902001       W                             CODES           L06705310562
1903004       CS 0222                                      L0700571056/222
1904002       CC                           K               L0680591056FK
1905007       MCWCODEA        0236                         L073066105 6M628236
1906001       W                                            L06706710562
1907004       CS 0236                                      L0700711056/236
1908002       CC                           J               L0680731056FJ
1909007       MCWCODEB        0236                         L073080105 6M645236
1910001       W                                            L06708110562
1911004       CS 0236                                      L0700851056/236
1912002       CC                           J               L0680871056FJ
1913007       MCWCODEC        0251                         L073094105 6M677251
1914007       MCWCODE2        0264                         L073A011056M690264
1915001       W                                            L067A0210562
1916004       CS 0264                                      L070A061056/264
1917002       CC                           J               L068A081056FJ
1918007       MCWCODED        0251                         L073A151056M722251
1919007       MCWCODE2        0264                         L073A221056M690264
1920001       W                                            L067A2310562
2001004       CS 0264                                      L070A271056/264
2002002       CC                           J               L068A291056FJ
2003007       MCWCODEE        0251                         L073A361056M754251
2004007       MCWCODE3        0255                         L073A431056M758255
2005001       W                                            L067A4410562
2006004       CS 0255                                      L070A481056/255
2007002       CC                           J               L068A501056FJ
2008007       MCWCODEF        0251                         L073A571056M790251
2009007       MCWCODE3        0255                         L073A641056M758255
2010001       W                                            L067A6510562
2011004       CS 0255                                      L070A691056/255
2012002       CC                           L               L068A711056FL
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2013007  MCWENDA     0233        INVENTORY  L073A781056M821233
2014001  W                       RECAP      L067A7910562
2015004  CS 0233                            L070A831056/233
2016002  CC                      K          L068A851056FK
2017007  MCWENDB     0239                   L073A921056M841239
2018007  MCWNOINV    0270                   L073A991056MZ91270
2019001  W                                  L067B0010562
2020004  CS 0270                            L070B041056/270
2101002  CC                      J          L068B061056FJ
2102007  MCWENDC     0244                   L073B131056M866244
2103007  MCWNOGAIN   0270                   L073B201056MZ96270
2104001  W                                  L067B2110562
2105004  CS 0270                            L070B251056/270
2106002  CC                      J          L068B271056FJ
2107007  MCWENDD     0245                   L073B341056M892245
2108007  MCWNOLOSS   0270                   L073B411056M/01270
2109001  W                                  L067B4210562
2110004  CS 0270                            L070B461056/270
2111002  CC                      J          L068B481056FJ
2112007  MCWENDE     0239                   L073B551056M912239
2113007  MCWNOREC    0270                   L073B621056M/06270
2114001  W                                  L067B6310562
2115004  CS 0270                            L070B671056/270
2116002  CC                      J          L068B691056FJ
2117007  MCWENDF     0250                   L073B761056M943250
2118007  LCACONT1    0280                   L073B831056LS63280
2119007  MCEMGAVAL   0280                   L073B901056E/78280
2120001  W                                  L067B9110562
2201004  CS 0280                            L070B951056/280
2202002  CC                      J          L068B971056FJ
2203007  MCWENDG     0251                   L073C041056M975251
2204007  LCACONT1    0280                   L073C111056LS63280
2205007  MCEMLOVAL   0280                   L073C181056E/84280
2206001  W                                  L067C1910562
2207004  CS 0280                            L070C231056/280
2208002  CC                      J          L068C251056FJ
2209007  MCWENDH     0241                   L073C321056M997241
2210007  LCACONT1    0280                   L073C391056LS63280
2211007  MCEREGVAL   0280                   L073C461056E/38280
2212001  W                                  L067C4710562
2213004  CS 0280                            L070C511056/280
2214002  CC                      J          L068C531056FJ
2215007  MCWENDI     0242                   L073C601056MZ20242
2216007  LCACONT1    0280                   L073C671056LS63280
2217007  MCERELVAL   0280                   L073C741056E/30280
2218001  W                                  L067C7510562
2219004  CS 0280                            L070C791056/280
2220002  CC                      J          L068C811056FJ
2301007  MCWENDJ     0250                   L073C881056MZ51250
2302007  LCACONT1    0280                   L073C951056LS63280
2303007  MCEINVVAL   0280                   L073D021056E/46280
2304001  W                                  L067D0310562
2305004  CS 0280                            L070D071056/280
2306002  CC                      J          L068D091056FJ
2307007  MCWENDK     0251                   L073D161056MZ83251
2308007  MCWENDL     0254                   L073D231056MZ86254
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2309007        LCACONT1        0280                                    L073D301056LS63280
2310007        MCESTKVAL       0280                                    L073D371056E/54280
2311001        W                                                       L067D3810562
2312004        CS 0280                                                 L070D421056/280
2313007PTZ     NOP0999         0999          LOCKED HALT               L073D491056N999999
2314001        H                                                       L067D501056.
2315004        B  PTZ                                                  L070D541056BD43
23160          ENDSTART                                                /T170801056
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INITIAL INVENTORY SUMMARY

CONDENSED OBJECT PROGRAM LISTING

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INITIAL INVENTORY SUMMARY-----CONDENSED OBJECT DECK
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INITIAL INVENTORY SUMMARYSTOCK NUMBER                   L037438,4271056
LOCATION    U/IPRICESTOCK    INVENTORY                  L038476,454,4591056
BALANCE  BALANCEMINOR ADJUSTMENTS                       L033509,4931056
  GAINS  LOSSESRECOUNTS(SER.NO)                         L031540,525,5331056
GAIN/LOSS   INVENTORY                                   L0215611056
  VALUE       VALUERECOUNT CODEABCD   ,593,594,595,5961L035596,581,588B039
EFRECOUNT CODESA.  COMPLETE LOSS      ,6121056          L032628,598,599B039
B.  COMPLETE GAIN                                       L0176451056
C.  GAIN EXCEEDS TEN PERCENT OF                         L0326771056
STOCK BALANCE                                           L0136901056
D.  LOSS EXCEEDS TEN PERCENT OF                         L0327221056
E.  GAIN EXCEEDS ONE HUNDRED DOLLARS                    L036758,7551056
F.  LOSS EXCEEDS ONE HUNDRED DOL                        L0327901056
RECOUNTINVENTORY RECAPITULATION                         L031821,7981056
NO.ITEMS INVENTORIED                                    L0208411056
NO.MINOR ADJUSTMENT GAINS                               L0258661056
NO.MINOR ADJUSTMENT LOSSES                              L0268921056
NO.ITEMS FOR RECOUNT                                    L0209121056
VALUE OF MINOR ADJUSTMENT GAINS                         L0319431056
VALUE OF MINOR ADJUSTMENT LOSSES                        L0329751056
VALUE OF RECOUNT GAINS                                  L0229971056
VALUE OF RECOUNT LOSSES                                 L023Z201056
TOTAL VALUE STOCK PER INVENTORY                         L031Z511056
TOTAL VALUE STOCK PER STOCK BALANCE                     L035Z86,Z841056
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-A072/60S070/60YS38/60Z/60249M368338    ,W25,W321056     L035W38,W11,W18B039
YS38052A052338M368/66A368/60YS38/60     ,W60,W671056     L035W73,W46,W53B039
A/60/66C/66338BP72SBK37UL368S37M368S02,W93,W98,X051056 L038X11,W81,W86B039
M/66S02S338S02YS38S02M368377M368S74     ,X33,X401056     L035X46,X19,X26B039
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FINAL INVENTORY SUMMARY

FINAL INVENTORY SUMMARY

STANDARD OBJECT PROGRAM LISTING

FINAL INVENTORY SUMMARY-----OBJECT DECK

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0103024HEAD2 DCW*      FINAL INVENTORY  SUMMARY                 L0473801056      F
0104012HEAD3 DCW*      STOCK NUMBER                             L0353921056      F
0105015HEAD4 DCW*      LOCATION    U/I                          L0384071056      F
01060 5HEAD5 DCW*      PRICE                                    L0284121056      F
0107018HEAD6 DCW*       STOCK    INVENTORY                      L0414301056      F
0108017HEAD7 DCW*      BALANCE   BALANCE                        L0404471056      F
0109011HEAD8 DCW*      ADJUSTMENTS                              L0344581056      F
0110013HEAD9 DCW*      GAINS  LOSSES                            L0364711056      F
01110 9HEAD10DCW*      GAIN/LOSS                                L0324801056      F
01120 5HEAD11DCW*      VALUE                                    L0284851056      F
0113028HEAD12DCW*      INVESTIGATE         INVENTORY            L0515131056      F
01140 9HEAD13DCW*      (SER.NO.)                                L0325221056      F
0115032ENDA  DCW*      INVENTORY RECOUNT RECAPITULATION         L0555541056      F
0116018ENDB  DCW*      NO.ITEMS RECOUNTED                       L0415721056      F
0117025ENDC  DCW*      NO.FINAL ADJUSTMENT GAINS                L0485971056      F
0118026ENDD  DCW*      NO.FINAL ADJUSTMENT LOSSES               L0496231056      F
0119032ENDE  DCW*      NO.ITEMS REQUIRING INVESTIGATION         L0556551056      F
0120031ENDF  DCW*      VALUE OF FINAL ADJUSTMENT GAINS          L0546861056      F
0201032ENDG  DCW*      VALUE OF FINAL ADJUSTMENT LOSSES         L0557181056      F
0202028ENDH  DCW*      VALUE OF INVESTIGATION GAINS             L0517461056      F
0203029ENDI  DCW*      VALUE OF INVESTIGATION LOSSES            L0527751056      F
0204028ENDJ  DCW*      VALUE OF RECOUNTED ITEMS PER             L0518031056      F
0205013ENDK  DCW*      STOCK BALANCE                            L0368161056      F
02060 9ENDL  DCW*      INVENTORY                                L0328251056      F
0207016CARDA DCW*      FINAL ADJUSTMENT                         L0398411056      F
02080 4CARDB DCW*      GAIN                                     L0278451056      F
02090 4CARDC DCW*      LOSS                                     L0278491056      F
02100 6WORKB DCW*      000000                                   L0298551056      F
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02120 6WORKD DCW*      000000                                   L0298671056      F
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02190 5NOFAG DCW*      00000                                    L0289501056      F
02200 5NOFAL DCW*      00000                                    L0289551056      F
03010 5NOIINVDCW*      00000                                    L0289601056      F
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03030 8VFAL  DCW*      00000000                                 L0319761056      F
03040 8VRII  DCW*      00000000                                 L0319841056      F
03050 8VRISB DCW*      00000000                                 L0319921056      F
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03130 8GAIVALDCW*      00000000                          L031Z771056          F
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0406001      W                                           L067/1010562
0407004      CS 0272                                     L070/141056/272
0408002      CC                              L           L068/161056FL
0409001      R                               READ INV DATE L067/1710561
0410007      MCW0080       0280                          L073/241056M080280
0411001      W                                           L067/2510562
0412004      CS 0080                                     L070/291056/080
0413004      CS 0280                                     L070/331056/280
0414002      CC                              L           L068/351056FL
0414104      SW 0001                                     L070/391056,001
0415001      R                               READ RECOUNTDATEL067/4010561
0416007      MCW0080       0280                          L073/471056M080280
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0418004      CS 0080                                     L070/521056/080
0419004      CS 0280                                     L070/561056/280
0420002      CC                              L           L068/581056FL
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0503007      MCWHEAD6      0252                          L073/791056M430252
0504007      MCWHEAD8      0267                          L073/861056M458267
0505007      MCWHEAD10     0285                          L073/931056M480285
0506007      MCWHEAD12     0319                          L073S001056M513319
0507001      W                                           L067S0110562
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0509004      CS 0299                                     L070S091056/299
0510007      MCWHEAD4      0215                          L073S161056M407215
0511007      MCWHEAD7      0251                          L073S231056M447251
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0513007      MCWHEAD11     0283                          L073S371056M485283
0514007      MCWHEAD13     0301                          L073S441056M522301
0515007      MCWHEAD11     0317                          L073S511056M485317
0516001      W                                           L067S5210562
0517004      CS 0317                                     L070S561056/317
0518004      CS 0299                                     L070S601056/299
0519002      CC                              L           L068S621056FL
0520007PTA   SW 0006       0023                          L073S691056,006023
0601007      SW 0034       0044                          L073S761056,034044
0601107      SW 0047       0060                          L073S831056,047060
0602007      SW 0063       0066                          L073S901056,063066
0603007      SW 0069       0071                          L073S971056,069071
0604004      SW 0074                                     L070T011056,074
0605005PTB   B  PTC                          ALAST CARD TEST L071T061056BL50A
0606001      R                               READ DATA CARD L067T0710561
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0608001      W                                           L067T1510562
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0609004        CS 0216                                                  L070T191056/216
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0612007        LCACONT1         0230                          L073T401056LZ51230
0613007        MCE0042          0230          U/PRICE TO PRINTL073T471056E042230
0614007        MCS0052          0237          STK BAL TO PRINTL073T541056Z052237
0615007        A  ONE           NOREC         RECOUNT COUNTER L073T611056AZ39945
0616007        MCWZEROS         BODINV                        L073T681056M920Z69
0617007        A  0062          BODINV        BULK COUNT      L073T751056A062Z69
0618007        A  0065          BODINV        BACKUP COUNT    L073T821056A065Z69
0619007        A  0068          BODINV        RETAIL COUNT    L073T891056A068Z69
0620007        A  0072          BODINV        PLUS ADJUSTMENTSL073T961056A072Z69
0701007        S  0070          BODINV        MINUS ADJUSTMENTL073U031056S070Z69
0702007        MZ ONE           BODINV                        L073U101056YZ39Z69
0703007        MCSBODINV        0249          COUNT TO PRINT  L073U171056ZZ69249
0704007        MCWZEROS         WORKB         STOCK BALANCE ANL073U241056M920855
0705007        MZ ONE           0052          INVENTORY       L073U311056YZ39052
0706007        A  0052          WORKB         BALANCE TO WORK L073U381056A052855
0707007        MCWZEROS         WORKC                         L073U451056M920861
0708007        A  ZEROS         BODINV                        L073U521056A920Z69
0709007        MZ ONE           BODINV                        L073U591056YZ39Z69
0710007        A  BODINV        WORKC          AREAS          L073U661056AZ69861
0711007        C  WORKC         WORKB          COMPARE INV/STK L073U731056C861855
0712005        B  PTI                        SINV=STK NO ADJ  L071U781056BJ26S
0713005        B  PTE                        UINVLESSBAL LOSS L071U831056BY07U
0714007        LCAZEROS         AREA           GAIN CALCULATIONL073U901056L920Z38
0715007        MCWZEROS         WORKF          FOR THE VALUE OFL073U971056M920885
0716007        MCWWORKC         WORKF          THE             L073V041056M861885
0717007        S  WORKB         WORKF                         L073V111056S855885
0718007        MZ ONE           WORKF                         L073V181056YZ39885
0719007        MCWZEROS         MUTPLR                        L073V251056M920929
0720007        MCWZEROS         MUTCND                        L073V321056M920940
0801007        A  WORKF         MUTPLR                        L073V391056A885929
0802007        A  0042          MUTCND                        L073V461056A042940
0803007        LCAMUTPLR        AREA  -020                    L073V531056L929Z18
0804008PTM1    B  PTM2          AREA  -020 0                  L074V611056BV88Z18C
0805008        B  PTM2          AREA  -020 0                  L074V691056BV88Z18C
0806007        A  MUTCND        AREA  -008                    L073V761056A940Z30
0807007        S  ONE           AREA  -020                    L073V831056SZ39Z18
0808004        B  PTM1                                        L070V871056BV54
0809008PTM2    BWZPTM3          AREA  -020 1                  L074V951056VW07Z18
0810007        LCAAREA  -001    AREA                          L073W021056LZ37Z38
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0812007PTM3    MZ ONE           AREA                          L073W131056YZ39Z38
0813007        ZA AREA          GAIVAL         GAIN           L073W201056OZ38Z77
0814007        MCWAREA          WORKE                         L073W271056MZ38879
0815007        MCSWORKF         0260                          L073W341056Z885260
0816007        A  ONE           NOFAG          FINAL ADJ COUNT L073w411056AZ39950
0817007        A  GAIVAL        VFAG           VALUE GAIN CNTR L073W481056AZ77968
0818007        LCACONT1         0285                          L073W551056LZ51285
0819007        MCEGAIVAL        0285                          L073W621056EZ77285
0820007        SW 0106          0123           PUNCH ADJ CARD  L073W691056,106123
0901007        SW 0134          0144                          L073W761056,134144
0902007        SW 0147          0164                          L073W831056,147164
0903007        SW 0168          0174                          L073W901056,168174
0904007        MCW0021          0121                          L073W971056M021121
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0908007      MCWCARDA      0162                                L073X251056M841162
0909007      MCWCARDB      0167                                L073X321056M845167
0909107      MCWZEROS      WORKG                               L073X391056M920890
0909207      MCWWORKF      WORKG                               L073X461056M885890
0910007      MCSWORKG      0172                                L073X531056Z890172
0911007      MCS0080       0180                                L073X601056Z080180
0912001      P                                                 L067X6110564
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0914007      C  WORKE      THOUS        IS GAIN OVER         L073X721056C879Z63
0915005      B  PTH                   T$1000                  L071X771056BX82T
0916004      B  PTI                                           L070X811056BJ26
0917007PTH   A  ONE        NOIINV       NO INVEST CNTR       L073X881056AZ39960
0918007      A  GAIVAL     VIG          VALUE OF GAINCTR     L073X951056AZ77Z00
0919007      MCS0080       0299                              L073Y021056Z080299
0920004      B  PTI                                           L070Y061056BJ26
1001007PTE   LCAZEROS      AREA         LOSS CALCULATION     L073Y131056L920Z38
1002007      MCWZEROS      WORKF        FOR THE VALUE OF     L073Y201056M920885
1003007      MCWWORKB      WORKF        THE                  L073Y271056M855885
1004007      S  WORKC      WORKF                             L073Y341056S861885
1005007      MZ ONE        WORKF                             L073Y411056YZ39885
1006007      MCWZEROS      MUTPLR                            L073Y481056M920929
1007007      MCWZEROS      MUTCND                            L073Y551056M920940
1008007      A  WORKF      MUTPLR                            L073Y621056A885929
1009007      A  0042       MUTCND                            L073Y691056A042940
1010007      LCAMUTPLR     AREA  -020                        L073Y761056L929Z18
1011008PTM4  B  PTM5       AREA  -020 0                      L074Y841056BZ11Z180
1012008      B  PTM5       AREA  -020 0                      L074Y921056BZ11Z180
1013007      A  MUTCND     AREA  -008                        L073Y991056A940Z30
1014007      S  ONE        AREA  -020                        L073Z061056SZ39Z18
1015004      B  PTM4                                         L070Z101056BY77
1016008PTM5  BWZPTM6       AREA  -020 1                      L074Z181056VZ30Z181
1017007      LCAAREA  -001 AREA                              L073Z251056LZ37Z38
1018004      B  PTM4                                         L070Z291056BY77
1019007PTM6  MZ ONE        AREA                              L073Z361056YZ39Z38
1020007      ZA AREA       LOSVAL       LOSS                 L073Z431056OZ38Z85
1101007      MCWAREA       WORKE                             L073Z501056MZ38879
1102007      MCSWORKF      0268                              L073Z571056Z885268
1103007      A  ONE        NOFAL        FINAL ADJ COUNT      L073Z641056AZ39955
1104007      A  LOSVAL     VFAL         VALUE LOSS CNTR      L073Z711056AZ85976
1105007      LCACONT1      0285                              L073Z781056LZ51285
1106007      MCFLOSVAL     0285                              L073Z851056EZ85285
1107007      SW 0106       0123         PUNCH ADJ CARD       L073Z921056,106123
1108007      SW 0134       0144                              L073Z991056,134144
1109007      SW 0147       0164                              L0730061056,147164
1110007      SW 0168       0174                              L0730131056,168174
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1112007      MCW0032       0132                              L0730271056M032132
1113007      MCW0043       0143                              L0730341056M043143
1114007      MCW0045       0145                              L0730411056M045145
1115007      MCWCARDA      0162                              L0730481056M841162
1116007      MCWCARDC      0167                              L0730551056M849167
1116107      MCWZEROS      WORKG                             L0730621056M920890
1116207      MCWWORKF      WORKG                             L0730691056M885890
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1117007      MCSWORKG      0172                                L07307610562890172
1118007      MCS0080       0180                                L07308310562080180
1119001      P                                                 L06708410564
1120004      CS 0180                                           L07008810562/180
1201007      C  WORKE      THOUS       IS LOSS OVER          L07309510562879Z63
1202005      B  PTK                   T$1000                  L071J001056BJ05T
1203004      B  PTI                                           L070J041056BJ26
1204007PTK   A  ONE        NOIINV      NO INVEST CNTR        L073J111056AZ39960
1205007      A  LOSVAL     VIL         VALUE OF LOSSCTR      L073J181056AZ85Z08
1206007      MCS0080       0299                                L073J251056Z080299
1207007PTI   LCAZEROS      AREA        CALCULATION OF        L073J321056L920Z38
1207107      MCWZEROS      TEST                              L073J391056M920Z86
1208007      MCWZEROS      MUTPLR      THE VALUE OF          L073J461056M920929
1209007      A  BODINV     MUTPLR      INVENTORY COUNT       L073J531056AZ69929
1210007      MCWZEROS      MUTCND      AND THE STOCK         L073J601056M920940
1211007PTL   A  0042       MUTCND      BALANCE               L073J671056A042940
1212007      LCAMUTPLR     AREA  -020                        L073J741056L929Z18
1213008PTM7  B  PTM8       AREA  -020 0                      L074J821056BK09Z180
1214008      B  PTM8       AREA  -020 0                      L074J901056BK09Z180
1215007      A  MUTCND     AREA  -008                        L073J971056A940Z30
1216007      S  ONE        AREA  -020                        L073K041056SZ39Z18
1217004      B  PTM7                                         L070K081056BJ75
1218008PTM8  BWZPTM9       AREA  -020 1                      L074K161056VK28Z181
1219007      LCAAREA -001  AREA                              L073K231056LZ37Z38
1220004      B  PTM7                                         L070K271056BJ75
1301007PTM9  MZ ONE        AREA                              L073K341056YZ39Z38
1302008      B  PTR        TEST        1                     L074K421056BL17Z861
1303007      A  ONE        TEST                              L073K491056AZ39Z86
1304007      A  AREA       VRII        VALUE INV CNTR        L073K561056AZ38984
1305007      LCACONT1      0319                              L073K631056LZ51319
1306007      MCWZEROS      WORKD                             L073K701056M920867
1307007      MCWAREA       WORKD                             L073K771056MZ38867
1308007      MCEWORKD      0319                              L073K841056E867319
1309007      LCAZEROS      AREA                              L073K911056L920Z38
1310007      MCWZEROS      MUTPLR                            L073K981056M920929
1311007      MCWZEROS      MUTCND                            L073L051056M920940
1312007      A  0052       MUTPLR                            L073L121056A052929
1313004      B  PTL                                          L070L161056BJ61
1314007PTR   A  AREA       VRISB       VALUE SB CNTR         L073L231056AZ38992
1315001      W                                               L067L2410562
1316004      CS 0319                                         L070L281056/319
1317004      CS 0299                                         L070L321056/299
1318002      CC                        K                     L068L341056FK
1319005      B  PTS                    ,NEW PAGE CHECK       L071L391056BL44,
1320004      B  PTB                     READ ANOTHER CAR     L070L431056BT02
1401002PTS   CC                        1SKIP TO NEW PAGE     L068L451056F1
1402004      B  PTB                     READ ANOTHER CD      L070L491056BT02
1403002PTC   CC                        1PRINT RECOUNT        L068L511056F1
1404007      MCWENDA       0252         RECAP INFORMATIO     L073L581056M554252
1405001      W                                               L067L5910562
1406004      CS 0252                                         L070L631056/252
1407002      CC                        K                     L068L651056FK
1408007      MCWENDB       0238                              L073L721056M572238
1409007      MCSNOREC      0270                              L073L791056Z945270
1410001      W                                               L067L8010562
1411004      CS 0270                                         L070L841056/270
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17080 ENDSTART /Z870801056

FINAL INVENTORY SUMMARY

CONDENSED OBJECT PROGRAM LISTING

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,008015,022026,030037N000,044,049053,069072N00001026
L068116,105106,110117B101/I9I=071029C029074B026/B001/0991,001/001117I00099
,008015,022029,036039,043047/039036   ,051,055,056,063N,067071,075,0011056
SOME NAVAL SUPPLY CENTER                                    L0243561056
FINAL INVENTORY  SUMMARYSTOCK NUMBER                        L036392,3811056
LOCATION    U/IPRICE STOCK   INVENTORY                      L038430,408,4131056
BALANCE   BALANCEADJUSTMENTS                                L028458,4481056
GAINS  LOSSESGAIN/LOSSVALUE                                 L027485,472,4811056
INVESTIGATE        INVENTORY(SER.NO.)                       L037522,5141056
INVENTORY RECOUNT RECAPITULATION                            L0325541056
NO.ITEMS RECOUNTED                                          L0185721056
NO.FINAL ADJUSTMENT GAINS                                   L0255971056
NO.FINAL ADJUSTMENT LOSSES                                  L0266231056
NO.ITEMS REQUIRING INVESTIGATION                            L0326551056
VALUE OF FINAL ADJUSTMENT GAINS                             L0316861056
VALUE OF FINAL ADJUSTMENT LOSSES                            L0327181056
VALUE OF INVESTIGATION GAINS                                L0287461056
VALUE OF INVESTIGATION LOSSES                               L0297751056
VALUE OF RECOUNTED ITEMS PER                                L0288031056
STOCK BALANCEINVENTORYFINAL ADJUSTMENT                      L038841,817,8261056
GAINLOSS0000000000  0000000000        ,856,862,8681056 L038879,846,850B039
00000000000                                                 L011890,8861056
0000000000000000000                                         L0309201056
000000  000000000000                  ,946,9511056     L035955,930,941B039
000000   000000000                    ,977,9851056     L037992,961,969B039
00000000000000000                                           L016Z08,Z011056
000000 000000000000       1                                 L031Z39,Z391056
$    ,  0.  00000010000000000000000000.Z701056          L038Z77,Z52,Z64B039
000000000,001M3562722/272M380272      ,Z91,Z98,Z99,/031L032/09,Z86,Z87B039
2/272FL1M0802802/080                  ,/17,/18,/25,/261L020/29,/11,/15B039
/280FL,0011M0802802/080               ,/40,/41,/48,/491L023/52,/34,/36B039
/280FLM392212M412230M430252M458267    ,/66,/73,/801056 L034/86,/57,/59B039
M480285M5133192/319/299M407215M447251 ,S02,S06,S10,S171L037S23,/94,S01B039
M471268M485283M522301M4853172/317/299 ,S45,S52,S53,S571L037S60,S31,S38B039
FL,006023,034044,047060,063066,069071 ,S77,S84,S911056 L037S97,S63,S70B039
,074BL50A1M0212162/216M032210         ,T08,T15,T16,T201L029T26,T02,T07B039
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M920Z69A062Z69A065Z69A068Z69A072Z69    ,T83,T901056     L035T96,T69,T76B039
S070Z69YZ39Z69ZZ69249M920855YZ39052    ,U18,U251056     L035U31,U04,U11B039
A052855M920861A920Z69YZ39Z69AZ69861   ,U53,U601056     L035U66,U39,U46B039
C861855BJ26SBY07UL920Z38M920885M861885,U84,U91,U981056 L038V04,U74,U79B039
S855885YZ39885M920929M920940A885929    ,V26,V331056     L035V39,V12,V19B039
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0Z38Z77MZ38879Z885260AZ39950AZ77968    ,W35,W421056     L035W48,W21,W28B039
LZ51285EZ77285,106123,134144,147164    ,W70,W771056     L035W83,W56,W63B039
,168174M021121M032132M043143M045145    ,X05,X121056     L035X18,W91,W98B039
M841162M845167M920890M885890Z890172    ,X40,X471056     L035X53,X26,X33B039
Z0801804/180C879Z63BX82TBJ26AZ39960    ,X66,X73,X78,X821L035X88,X61,X62B039
AZ77Z00Z080299BJ26L920Z38M920885       ,Y07,Y141056     L032Y20,X96,Y03B039
M855885S861885YZ39885M920929M920940    ,Y42,Y491056     L035Y55,Y28,Y35B039
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FINAL INVENTORY SUMMARY-----CONDENSED OBJECT DECK
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,008015,022026,030037N000,044,049053,069072N00001026
L068116,105106,110117B101/I9I=071029C029074B026/B001/0991,001/001117I00099
,008015,022029,036039,043047/039036   ,051,055,056,063N,067071,075,0011056
SOME NAVAL SUPPLY CENTER                                    L0243561056
FINAL INVENTORY  SUMMARYSTOCK NUMBER                        L036392,3811056
LOCATION    U/IPRICE STOCK   INVENTORY                      L038430,408,4131056
BALANCE   BALANCEADJUSTMENTS                                L028458,4481056
GAINS  LOSSESGAIN/LOSSVALUE                                 L027485,472,4811056
INVESTIGATE        INVENTORY(SER.NO.)                       L037522,5141056
INVENTORY RECOUNT RECAPITULATION                            L0325541056
NO.ITEMS RECOUNTED                                          L0185721056
NO.FINAL ADJUSTMENT GAINS                                   L0255971056
NO.FINAL ADJUSTMENT LOSSES                                  L0266231056
NO.ITEMS REQUIRING INVESTIGATION                            L0326551056
VALUE OF FINAL ADJUSTMENT GAINS                             L0316861056
VALUE OF FINAL ADJUSTMENT LOSSES                            L0327181056
VALUE OF INVESTIGATION GAINS                                L0287461056
VALUE OF INVESTIGATION LOSSES                               L0297751056
VALUE OF RECOUNTED ITEMS PER                                L0288031056
STOCK BALANCEINVENTORYFINAL ADJUSTMENT                      L038841,817,8261056
GAINLOSS0000000000  0000000000        ,856,862,8681056 L038879,846,850B039
00000000000                                              L011890,8861056
0000000000000000000                                      L0309201056
000000  000000000000                  ,946,9511056       L035955,930,941B039
000000   000000000                    ,977,9851056       L037992,961,969B039
0000000000000000                                         L016Z08,Z011056
000000 0000000000000          1                          L031Z39,Z391056
$    ,  0.  00000010000000000000000000,Z701056          L038Z77,Z52,Z54B039
000000000,001M3562722/272M380272      ,Z91,Z98,Z99,/031L032/09,Z86,Z87B039
2/272FL1M0802802/080                  ,/17,/18,/25,/261L020/29,/11,/15B039
/280FL,0011M0802802/080               ,/40,/41,/48,/491L023/52,/34,/36B039
/280FLM392212M412230M430252M458267    ,/66,/73,/801056 L034/86,/57,/59B039
M480285M5133192/319/299M407215M447251 ,S02,S06,S10,S171L037S23,/94,S01B039
M471268M485283M522301M4853172/317/299 ,S45,S52,S53,S571L037S60,S31,S38B039
FL,006023,034044,047060,063066,069071 ,S77,S84,S911056 L037S97,S63,S70B039
,074BL50A1M0212162/216M032210        ,T08,T15,T16,T201L029T26,T02,T07B039
M045215LZ51230E042230Z052237AZ39945   ,T48,T551056      L035T61,T34,T41B039
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SZ39Z18BV54VW07Z181LZ37Z38BV54YZ39Z38 ,V96,W03,W071056 L037W13,V84,V88B039
0Z38Z77MZ38879Z885260AZ39950AZ77968   ,W35,W421056      L035W48,W21,W28B039
LZ51285EZ77285,106123,134144,147164   ,W70,W771056      L035W83,W56,W63B039
,168174M021121M032132M043143M045145   ,X05,X121056      L035X18,W91,W98B039
M841162M845167M920890M885890Z890172   ,X40,X471056      L035X53,X26,X33B039
Z080180/180C879Z63BX82TBJ26AZ39960    ,X66,X73,X78,X821L035X88,X61,X62B039
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YZ39Z380Z38Z85MZ38879Z885268AZ39955   ,Z51,Z581056      L035Z64,Z37,Z44B039
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BK09Z180BK09Z180A940Z30SZ39Z18BJ75    ,J98,K051056      L034K08,J83,J91B03S
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LZ51280E9762802/280FJM746248LZ51280   ,N00,N04,N06,N131L035N19,M92,M99B03S
EZ002802/280FJM775249LZ51280EZ08280   ,N32,N34,N41,N481L035N54,N27,N28B03S
2/280FJM803248M825258LZ51280E984280   ,N62,N69,N76,N831L035N89,N56,N60B03S
2/280FJM803248M816262LZ51280E992280   ,N97,O04,O11,O181L035O24,N91,N95B03S
2/280N999999.B030                     ,O37,O381056      L017041,O26,O30B03S
                                                        /Z87080
```

APPENDIX D

SAMPLE OUTPUT LISTINGS

INITIAL INVENTORY SUMMARY

FINAL INVENTORY SUMMARY

INITIAL INVENTORY SUMMARY

SOME NAVAL SUPPLY CENTER
INITIAL INVENTORY SUMMARY

COG 1N GROUP 59 CLASS 05 FIRST COUNT COMPLETED 6/10/65

STOCK NUMBER / LOCATION	U/I		PRICE	STOCK BALANCE	INVENTORY BALANCE	MINOR ADJUSTMENTS GAINS	MINOR ADJUSTMENTS LOSSES	RECOUNTS (SER.NO)	RECOUNT CODE		GAIN/LOSS VALUE		INVENTORY VALUE
1N 5905 424 4100 313 224 56	EA	$	1,100.00	5	5							$	5,500.00
1N 5905 509 6772 075 031 20	EA	$	.70	12	122	RECOUNT		215	C	$	77.00	$	85.40
1N 5905 509 6776 075 033 20	EA	$	.75	36		RECOUNT		216	A	$	27.00	$	.00
1N 5905 509 6789 075 019 30	EA	$	1.10									$	.00
1N 5905 509 6801 075 019 20	PR	$	3.50	300	300							$	1,050.00
1N 5905 509 6805 075 041 25	EA	$	10.00	20	19	1				$	10.00	$	190.00
1N 5905 515 2132 075 314 25	EA	$	1.00	3000	2960	40				$	40.00	$	2,960.00
1N 5905 520 3141 075 333 30	AY	$	300.00	1		RECOUNT		221	F	$	300.00	$	.00
1N 5905 542 3074 313 334 05	EA	$	.55	55	71	RECOUNT		222	C	$	8.80	$	39.05
1N 5905 542 3171 313 122 07	EA	$	.21	339	66	RECOUNT		223	D	$	55.23	$	13.86
1N 5905 545 2130 075 033 10	EA	$	10.50	300	296	4				$	42.00	$	3,108.00
1N 5905 545 2131 075 044 05	EA	$	.25		1	RECOUNT		225	B	$	.25	$	.25
1N 5905 545 2160 075 316 25	GL	$	22.50	21	21							$	472.50
1N 5905 545 2162 075 333 20	EG	$	49.00	4	5	RECOUNT		227	C	$	49.00	$	245.00
1N 5905 546 3131 075 122 20	EA	$	23.00	4	4							$	92.00
1N 5905 546 3400 075 333 25	AY	$	72.00	10	10							$	720.00

1N 5905 5[illegible] 2 04 075 020 21 CA	$	144.[illegible]	[illegible]	[illegible]							$	3,172.40
1N 5905 5[illegible] 3144 075 040 25 CL	$	142.00	20	[illegible]							$	2,840.00
1N 5905 5[illegible] 3 [illegible] 313 072 36 CA	$	.21	560	[illegible]							$	110.40
1N 5905 5[illegible] 2980 313 333 36 CA	$	[illegible].00	[illegible]	3	RECOUNT		238	E	$	105.00	$	315.00
1N 5905 5[illegible] 2990 313 333 32 PR	$	100.00	4	4							$	400.00
1N 5905 5[illegible] 3121 313 334 06 CA	$	2.00	220	220							$	440.00
1N 5905 5[illegible] 3124 313 334 07 CA	$	.40	120	120	RECOUNT		36	C	$	8.00	$	48.00
1N 5905 5[illegible] 3400 313 336 05 CA	$	[illegible]	20	20							$	113.00
1N 5905 5[illegible] 3401 313 336 06 CA	$	[illegible]									$	.00
1N 5905 540 2120 313 333 20 PR	$	4.00	1	1							$	4.00
1N 5905 540 2 29 313 333 21 CA	$	[illegible].00	20	40	RECOUNT		40	F	$	250.00	$	1,000.00
1N 5905 540 2130 313 333 26 CA	$	[illegible].00	4	10	RECOUNT		241	D	$	1,830.00	$	3,050.00
1N 5905 545 1904 075 122 05 CA	$	20.05	219	[illegible]	RECOUNT		242	F	$	280.70	$	4,110.25
1N 5905 545 1905 075 123 05 CA	$	25.65	9	11	RECOUNT		245	C	$	51.30	$	282.15
1N 5905 545 2120 075 144 05 CA	$	2.70	9	9	1				$	52.30	$	470.70
1N 5905 545 2 20 075 144 07 CA	$	1.50	22	[illegible]	1				$	1.50	$	34.50
1N 5905 545 2431 075 145 04 CA	$	.40	4[illegible]	440	7				$	2.10	$	132.00
1N 5905 560 2990 313 130 24 PA	$	.44	7[illegible]	715		7			$	3.08	$	314.60
1N 5905 565 4444 313 130 05 PR	$	[illegible].50	444	600	RECOUNT		248	F	$	110.00	$	1,500.00
1N 5905 565 5600 313 135 05 PA	$	[illegible].50	603	600		5			$	12.50	$	1,500.00
1N 5905 565 7311 313 135 04 PA	$	400.00	10	10							$	4,000.00
1N 5905 6[illegible] 2919 313 135 05 PA	$	[illegible].05	1	1							$	200.05

1N 5905 622 3.01 075 440 05 EA	$	.05	2	2					$	.10
1N 5905 622 3.02 075 440 04 LA	$	.10	3000	2700	300		$	30.00	$	270.00

RECOUNT CODES

A. COMPLETE LOSS
B. COMPLETE GAIN
C. GAIN EXCEEDS TEN PERCENT OF STOCK BALANCE
D. LOSS EXCEEDS TEN PERCENT OF STOCK BALANCE
E. GAIN EXCEEDS ONE HUNDRED DOLLARS
F. LOSS EXCEEDS ONE HUNDRED DOLLARS

INVENTORY RECAPITULATION

NO.ITEMS INVENTORIED	00040	
NO.MINOR ADJUSTMENT GAINS	00002	
NO.MINOR ADJUSTMENT LOSSES	00006	
NO.ITEMS FOR RECOUNT	00014	
VALUE OF MINOR ADJUSTMENT GAINS		$ 55.90
VALUE OF MINOR ADJUSTMENT LOSSES		$ 137.58
VALUE OF RECOUNT GAINS		$ 2,129.35
VALUE OF RECOUNT LOSSES		$ 1,022.93
TOTAL VALUE STOCK PER INVENTORY		$ 38,783.21
TOTAL VALUE STOCK PER STOCK BALANCE		$ 37,758.47

FINAL INVENTORY SUMMARY

SOME NAVAL SUPPLY CENTER
FINAL INVENTORY SUMMARY

CCG 1N GROUP 59 CLASS 05 FIRST COUNT COMPLETED 6/10/65

CCG 1N GROUP 59 CLASS 05 SECOND COUNT COMPLETED 6/12/65

STOCK NUMBER LOCATION	U/I		PRICE	STOCK BALANCE	INVENTORY BALANCE	ADJUSTMENTS GAINS	ADJUSTMENTS LOSSES		GAIN/LOSS VALUE	INVESTIGATE (SER.NO.)		INVENTORY VALUE
1N 5905 509 6772 C75 031 22	EA	$	.70	12	13	1		$	.70		$	9.10
1N 5905 509 6776 C75 033 20	EA	$	.75	36			36	$	27.00		$	.00
1N 5905 520 3141 075 333 30	AY	$	300.00	1			1	$	300.00		$	.00
1N 5905 522 3074 313 334 05	EA	$	.55	55	55						$	30.25
1N 5905 522 3171 313 122 07	FA	$	.21	329	194		135	$	28.35		$	40.74
1N 5905 525 2131 C75 044 05	EA	$	.25		1	1		$	.25		$	.25
1N 5905 525 2162 075 333 20	BG	$	49.00	4	4						$	196.00
1N 5905 535 2989 313 333 30	EA	$	105.00	2	12	10		$	1,050.00	233	$	1,260.00
1N 5905 535 3224 313 334 07	EA	$	.40	100	60		40	$	16.00		$	24.00
1N 5905 540 2125 313 333 21	EA	$	25.00	50	45		5	$	125.00		$	1,125.00
1N 5905 540 2130 313 333 26	EA	$	305.00	4	3		1	$	305.00		$	915.00
1N 5905 545 1904 075 122 05	EA	$	20.05	219	219						$	4,390.95
1N 5905 545 1905 075 123 05	EA	$	25.65	9	6		3	$	76.95		$	153.90
1N 5905 565 4144 313 130 05	PR	$	2.50	644	80		564	$	1,410.00	248	$	200.00

INVENTORY RECOUNT RECAPITULATION

NO.ITEMS RECOUNTED	14	
NO.FINAL ADJUSTMENT GAINS	3	
NO.FINAL ADJUSTMENT LOSSES	8	
NO.ITEMS REQUIRING INVESTIGATION	2	
VALUE OF FINAL ADJUSTMENT GAINS	$	1,050.95
VALUE OF FINAL ADJUSTMENT LOSSES	$	2,288.30
VALUE OF INVESTIGATION GAINS	$	1,050.00
VALUE OF INVESTIGATION LOSSES	$	1,410.00
VALUE OF RECOUNTED ITEMS PER INVENTORY	$	8,345.19
VALUE OF RECOUNTED ITEMS PER STOCK BALANCE	$	9,582.54

APPENDIX E

ADDRESSOGRAPH PORTABLE PUNCH MACHINE

FOR SOURCE DATA COLLECTION

Addressograph® DATA PUNCH

Portable

The New Portable Addressograph® Data Punch Punches and Prints Variable Data AT THE SOURCE

The exclusive Addressograph Data Punch prepares variable source data for direct input to punched card and E.D.P. Systems. Highly adaptable for decentralized application, it provides an unprecedented, accurate, low-cost means for collecting machine and human sensible data on source documents . . . handles various size tabulating cards or multiple-part card sets. Significantly, the punched and printed card is ready for input to the data processing system without verification or subsequent intermediate preparation steps. The holes punched are of standard size and spacing.

The new unit punches up to six columns of data and simultaneously prints the numerical counterpart with a single machine stroke. Punching and printing in additional fields is made possible by simply repositioning the card. The printed digits appear across the top of the card.

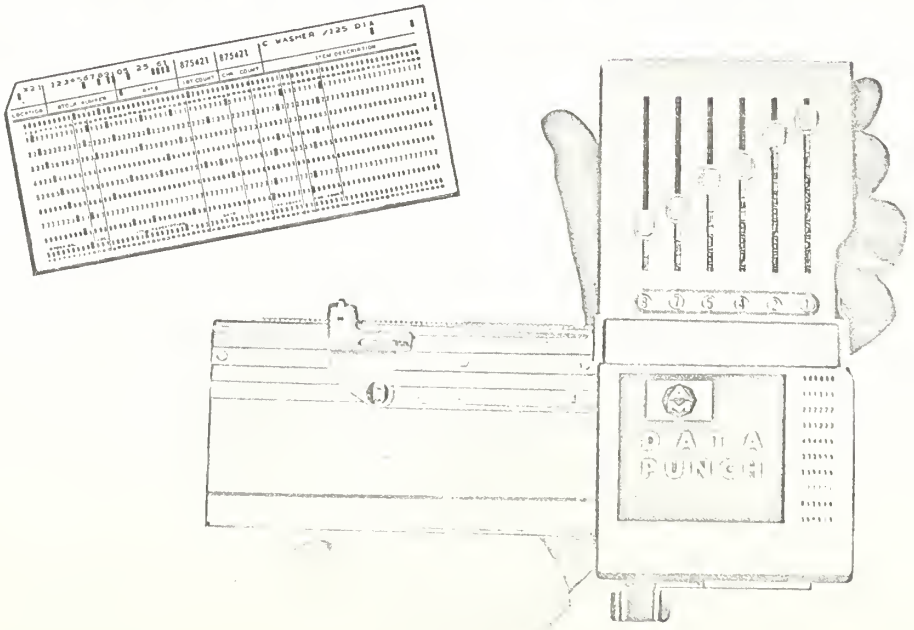
Uses for the Addressograph Data Punch encompass a wide range of applications where punched tabulating cards or card unit sets are employed to speed paperwork procedures.

Representative "field" uses include: stock requisitioning, field inventory recording, catalog ordering, route salesmen's order/delivery reporting, meter and gauge reading, insurance premium collection and statistical compilation. Typical "in plant" uses include applications such as: stock requisitioning, physical inventory, tool control, programming automatic machines, equipment and facilities maintenance, production recording and order invoicing routines.

The Data Punch can also serve as a valuable auxiliary key-punch for adding information to previously punched cards, entering special codes as instructions and in re-creating data from damaged cards.

Models to Meet Specific Needs

Components may be varied to meet the exacting needs of the job or system requirements. Models can be supplied to punch-print . . . in fixed fields, in several predetermined field locations, or with an optional variable field indexing gauge to enable punching in any position on the card. These portable units are available enclosed in lightweight plastic carrying cases which include storage compartments. Modular in design, the Data Punch Series offers a unique combination of advantages which add materially to flexibility in application.



MODEL 21-2

Maximum flexibility of data punching and printing is provided by the Model 21-2. Punching may be done in fields of up to six columns each in any location on the card. A printed strip on the card gauge is used to identify the various field locations to be punched. The field indexing gauge is equipped with a positive registration stop and a magnifying window to facilitate reading the reference data on the strip.

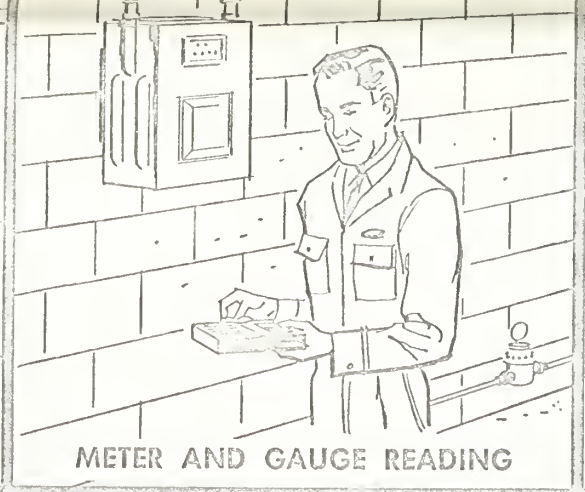
A tabulator stop is optionally available to facilitate quick location of the card to each of several pre-determined punching fields. All data punched is printed across the top of the card from large, bold face type through a ribbon.

OTHER MODELS

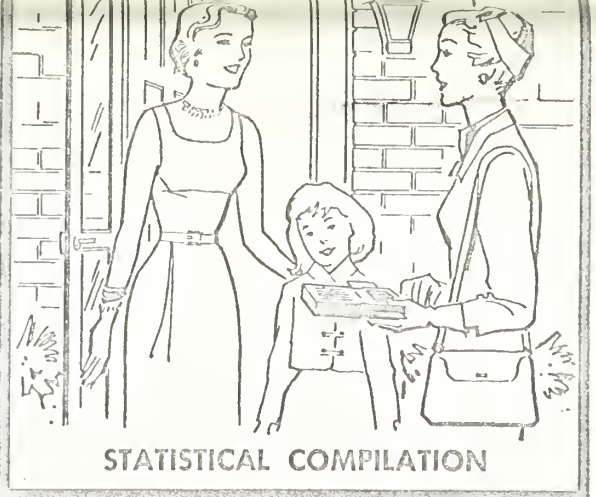
Bunches and Prints Scrubbed Variable Adaptation Data AT THE SOURCE

FOR
SOURCE
DATA
COLLECTION

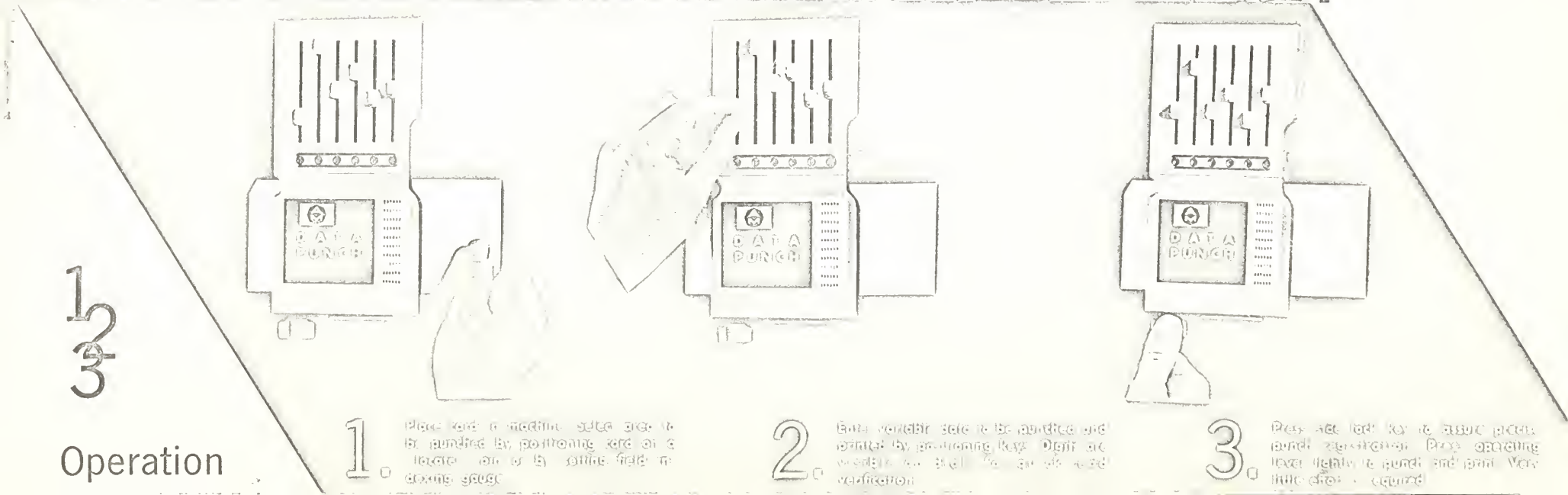
STOCK REQUISITIONING



METER AND GAUGE READING



STATISTICAL COMPILATION



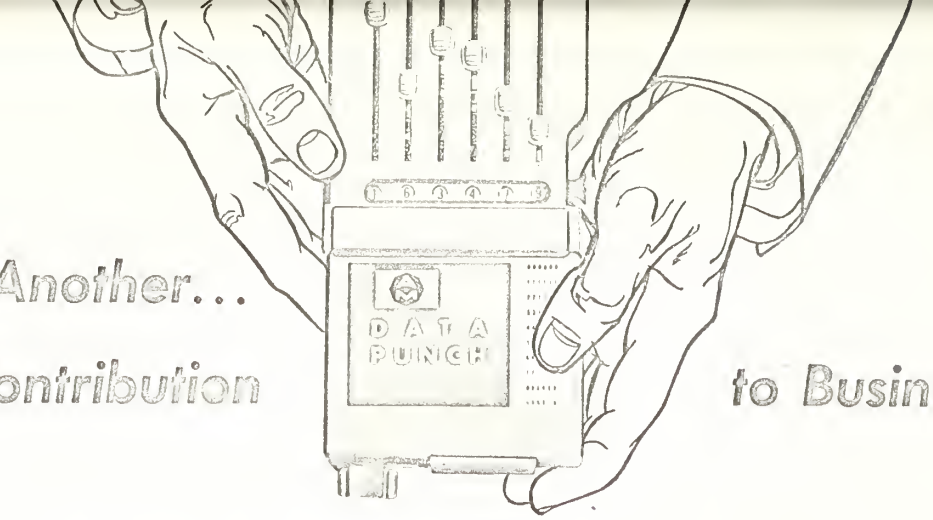
1
2
3

Operation

1. Place card in machine. Data are to be punched by positioning card at a location on key by setting field in access gauge.

2. Data variable data to be punched and control by positioning keys. Digit ac- [illegible] verification.

3. Press set key to release punch registration. Press operating lever lightly to punch and print. Very little effort required.



Another...

Addressograph® Contribution to Business Automation

THIS PORTABLE DATA PUNCH...

can simplify the enormous task of preparing input to Data Processing Systems

Direct-from-source input provides the efficiency, speed and reliability needed for a smooth operating data processing system. The subsequent transcription of data and keypunching are eliminated as are errors which normally result from multiple handling. The Data Punch is representative of a complete line of Addressograph equipment designed to pre-punch and pre-print documents for entry into a data processing system . . . increases the productive utilization of this equipment.

Addressograph-Multigraph has offices in principal cities of the world. Field representatives in these offices have the knowledge and experience to help provide maximum benefits from equipment such as the Portable Addressograph Data Punch. These men are kept up to date through the constant development and world-wide exchange of new ideas for the simplification of business paperwork methods.

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Produced in U

Addressograph-Multigraph Corporation 1200 BABBITT ROAD • CLEVELAND 17, OHIO

Addressograph Multigraph of Canada, Ltd. Toronto 16 Ontario Canada • Conveniently located offices throughout the world